



FLIGHT

The
AIRCRAFT
ENGINEER
and
AIRSHIPS



First Aero Weekly in the World.

Founder and Editor : STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

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EDITORIAL COMMENT.



TOMORROW (Friday) at 11 a.m. the starting signal for the first three machines will be given at Cowes, when possibly eight seaplanes will compete for the Schneider Trophy, representing three countries—America, Great Britain and France. Italy had entered two machines, but at the last moment notification was received that these would not be present at Cowes, and the much-coveted Trophy will therefore be contested for by but three nations. What the outcome will be it is impossible to say. The American machines are extremely fast, although the United States have been deprived of their fastest unit by the accident to the 700 h.p. Navy-Wright seaplane. It is a curious fact that whereas the Americans have pinned their faith entirely to the twin-float seaplane type, both France and Great Britain will be represented by "single-float seaplanes" as it is now fashionable in official circles to describe the type that was once upon a time clearly and popularly defined by the term "flying boat."

There was a time, and not so very long ago, when the controversy "boat or floats?" was a very lively one. Just lately the subject seems to have received but little attention, owing probably to the fact that altogether the seaplane type of heavier-than-air craft has been sadly neglected in this country. It is to be hoped that the Schneider Cup seaplane race will do something towards awaking a general interest in the seaplane, a type in which FLIGHT has often expressed its firm belief. If that should be the case the race will not have been flown in vain, whatever the immediate result of the contest. The British Empire, separated as its various component parts are by leagues of ocean, has a peculiar need of developing the seaplane type of machine, and in this as in other spheres of activity history will probably repeat itself. Great Britain was ever a nation of sailors, but sailors are conservative folk, and do not readily take to anything new. The consequence has been that, in spite of its great—and as yet almost untouched—possibilities, the seaplane has not received

DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:—

Sept. 28....	Schneider Cup Seaplane Race at Cowes
Oct. 4	R.Ae.S. Inaugural Lecture
Oct. 8-13	Light 'Plane and Glider Competitions, Lympne
Oct. 12	"Some Aspects of an Attempt to Fly Round the World," by Maj. W. T. Blake, before I.Ae.E.
Oct. 14	Beaumont Cup Race at Istres, France
Oct. 18	"The Manœuvres of Inverted Flight," by Sq.-Leader R. M. Hill, before R.Ae.S.
Oct 26	"Three-Ply in Aircraft Construction," by Capt. R. N. Liptrot, B.A., before I.Ae.E.
Nov. 1	"Present Developments in Aircraft Instruments," by Major Wimperis, before R.Ae.S.
Nov. 9	"Soaring Flight," by Dr. E. H. Hankin, before I.Ae.E.
Nov. 15	"The Thermodynamics of Aircraft Engines," by Mr. H. R. Ricardo, before R.Ae.S.
Nov. 29	"Airmanship at Sea," by Sqd.-Ldr. Maycock

in this country the attention which it has every appearance of meriting. We have dabbled a little in the subject, it is true, and we have from time to time produced some very remarkable machines of the seaplane type. But as a nation we have done relatively little of recent years, and the seaplane branch of our aircraft industry is represented by a very small number of firms. Fortunately, there are signs that we are about to take steps to remedy the neglect of past years, and therefore we have hopes that the Schneider Race, coming as it does at a very opportune moment, will have the effect of strengthening the hand of those who are trying to secure for the seaplane that attention and assistance which it so richly deserves.

It is a curious fact that the British temperament is such that all things new are at first regarded with indifference, if not with actual suspicion. Not until others have shown what can be done do we make up our minds that "there may be something in it after all." Once we have come to that conclusion, however, we usually set to work, and in a relatively short time work our way to the very front rank of that particular sport, industry, science, or whatever the subject happens to be.

Just recently other nations have shown a very keen interest in the seaplane. France has established a strong seaplane policy, and in the United States of America the Naval Air Service has been hard at work evolving new types for special purposes. The French competition for the trans-Mediterranean flight, referred to elsewhere in this issue of FLIGHT, is a case in point, and illustrates the interest which the French Government is taking in the seaplane. In America several notable performances have been put up recently, and among them mention may be

made of speed records established by racing machines built for the United States Naval Air Service. Other nations, too, are beginning to realise the possibilities of the seaplane, and a goodly number have been purchased from British constructors.

Our Government, however, does not yet appear to be fully awake to what the seaplane means and what it can do. Otherwise one could not imagine the present state of affairs, in which two—or even quite probably only one—seaplanes built entirely as the result of private enterprise are being matched against six others built, if not to the order of their respective governments, at least with a great deal of practical assistance of those governments. France, in allocating orders to constructors, takes into consideration the policy and performances of firms in races, records, and competitions. America goes a step farther, and definitely places orders for machines to compete in international events.

Compared with the offer by our Air Ministry of purchasing the winning machine, if British, for £3,000 without engine, the American treatment of her constructors is extremely generous, and if Britain should fail to win the Schneider race this year let us remember the intolerable handicap under which our constructors have worked, and let us realise that if anyone is to blame it is certainly not our designers and constructors, who have, as a matter of fact, done wonderfully well. We congratulate the Supermarine Aviation Works, the Blackburn Aeroplane and Motor Co., and D. Napier and Son, Ltd., on their very fine effort to secure for Great Britain the Schneider Trophy, and we wish them the very best of luck in the race. If they fail, they will fail honourably, and through no fault of their own. If they succeed, their glory will be all the greater.



THE FRENCH GRAND PRIX FOR COMMERCIAL MACHINES

Farmans in the Lead

ON Monday, September 24, the French competitions for commercial aeroplanes finished. Although the official figures are not yet available, it would appear that first and second places were secured by the Farman machines, fitted with Lamblin radiators of new type. The machine which is thought to have secured first place is a Farman monoplane with four 180 h.p. Hispano-Suiza engines. The pilots in the competition were Coupet and Landry, with Lebourg as engineer.

The second Farman is of the Goliath type (biplane), but is fitted with four 260 h.p. Salmson engines in place of the usual two engines on the Goliaths familiar to visitors to Croydon aerodrome. The Goliath was piloted by Bossoutrot and Drouhin, who had with them as engineer M. Jousse. Third place is believed to have been secured by a four-engined Bleriot, type 115, with 180 h.p. Hispano-Suiza engines, similar to the machine on which Casale met his death. This machine was piloted in the competition by Bizot and Villechanoux, with Viguié as engineer.

The course for the Grand Prix was over the route Paris-Metz-Paris, the total distance to be flown being 1,085.5 kms. (673 miles). The following formula was used in determining the placing of competitors:—

$$\frac{P \cdot V}{C}$$

in which P is the engine power, V the speed in kilometres, and C the weight of fuel consumed on the flight. At the moment it is not known what the exact figures, based on this formula, for the three machines are. The Breguet Leviathan, it will be remembered, was crashed and burnt during the early part of the Grand Prix, the pilots and engineer escaping with a shaking.

The Farman four-engined Goliath is similar to the standard machine except for the tandem mounting on the wings of the four engines. It has the rectangular-flat-sided, square-

cornered appearance of the older Goliath, but appears to fly well.

The Farman four-engined monoplane will be an unknown quantity to English readers. In a general way the machine may be said to be influenced by Dornier-Zeppelin design in that the four engines are mounted on short wing roots growing out of the sides of the body, each root carrying two engines, one tractor and one pusher. The monoplane wing rests on top of the fuselage, and is braced by struts running out from the ends of the engine-carrying wing roots.

The Bleriot 115 is, as already stated, generally similar to the machine flown by Casale, and of which a full description was given in our issue of July 12, 1923. This machine was rushed through in a very short time, and certain alterations from the original design were made, notably as regards the fuselage. The first flying tests were made by Bizot on September 8, and some trouble was, we believe, experienced with the engines, which were old re-conditioned surplus war stock. It will be remembered that the Bleriot has the four engines arranged two on the bottom plane and two on the top plane. The machine flies with any one out of the four engines cut out, and has passed its tests of flying four figures of eight with either of the four engines stopped. In the eliminating trials for the Grand Prix the machines had to get off and land in a distance of not more than 250 m. and the sparking plugs of two engines had to be changed during flight.

The weight of the Bleriot 115 empty, but with the cooling water for the engines on board, is 2,910 kgs. (6,400 lbs.) and fully loaded for the Grand Prix the machine weighed, something like 4,700 kgs. (10,340 lbs.).

A Henry Potez biplane was also entered, and is reported to have passed its eliminating trials, but at the moment it is not known what happened to it in the Grand Prix.

SCHNEIDER CUP SEAPLANE RACE

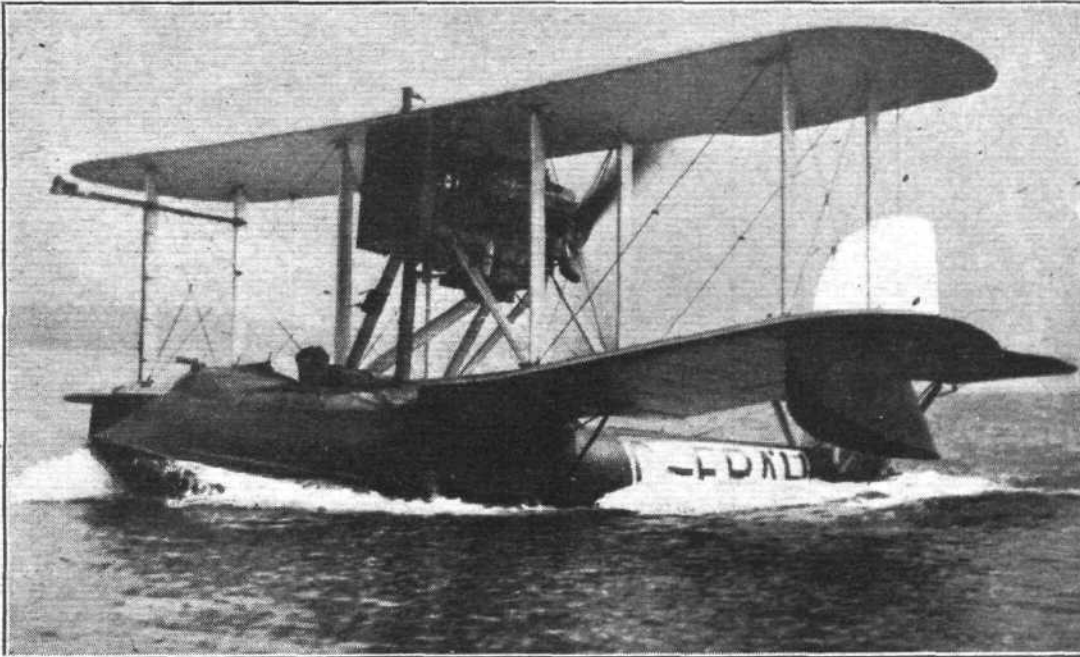
Britain's Difficult Task

At 11 a.m. on Friday, September 28, the signal will be given for the first competitors to start in the International seaplane race for the Schneider Cup, at Cowes, Isle of Wight. This race, which has been won twice previously by British machines—last year at Naples by Captain Biard on a Supermarine "Sea Lion" with Napier "Lion" engine, and in 1914 at Monaco by Howard Pixton on a Sopwith seaplane with Gnome engine—is to be flown this year over a triangular course at Spithead, starting from Cowes and with turning points at Selsey Bill and Southsea. The total distance to be flown is 186 nautical miles = 214.3 land

than 12 knots, fly a certain distance and alight again, after which the machines must be left moored at a buoy without attendance for six hours. If a machine has sprung a leak and begins to sink, or requires assistance from any cause whatever, so that a crew has to be sent on board, the machine will forfeit its right to fly in the race.

The Competitors

At the moment of writing it appears that the race, assuming all the machines will pass the navigability and mooring tests, will be flown by eight seaplanes—three American, three French, and two British.



Out for a test:
The Supermarine
"Sea Lion,"
Mark II, Napier
"Lion" engine,
one of the
Schneider Cup
defenders, taxi-
ing down South-
ampton Water
preparatory to
making a test
flight piloted by
Capt. Biard, win-
ner of the
Schneider Cup
Race at Naples
last year.

miles, or approximately 345 kms., the course, which measures 42.86 land miles, having to be covered five times.

The competitors will be started at 15 min. intervals, the representatives of each country starting together. The order of starting was to have been as follows: Italy, America, Great Britain and France. Now that the Italian representatives have scratched, presumably the American competitors will be started first, followed 15 mins. later by the British, who will in turn be followed by the French representatives.

Today (Thursday) navigability trials, followed by a six-hour mooring test, will be held, in which the competitors must taxi two distances of $\frac{1}{2}$ mile each at a speed of not less

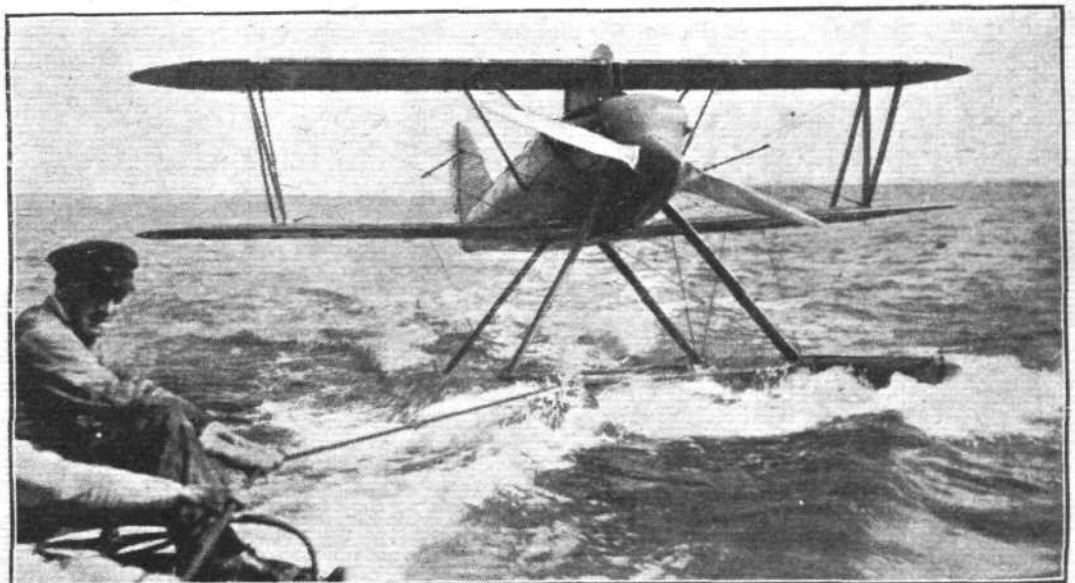
The United States of America were originally represented by four machines, of which one was in reserve, as each country is only allowed three representatives. The accident to the Navy-Wright, to which reference is made elsewhere, will probably mean that the reserve American machine will take part in the race in place of the wrecked seaplane. Thus the American team will be composed as follows:—

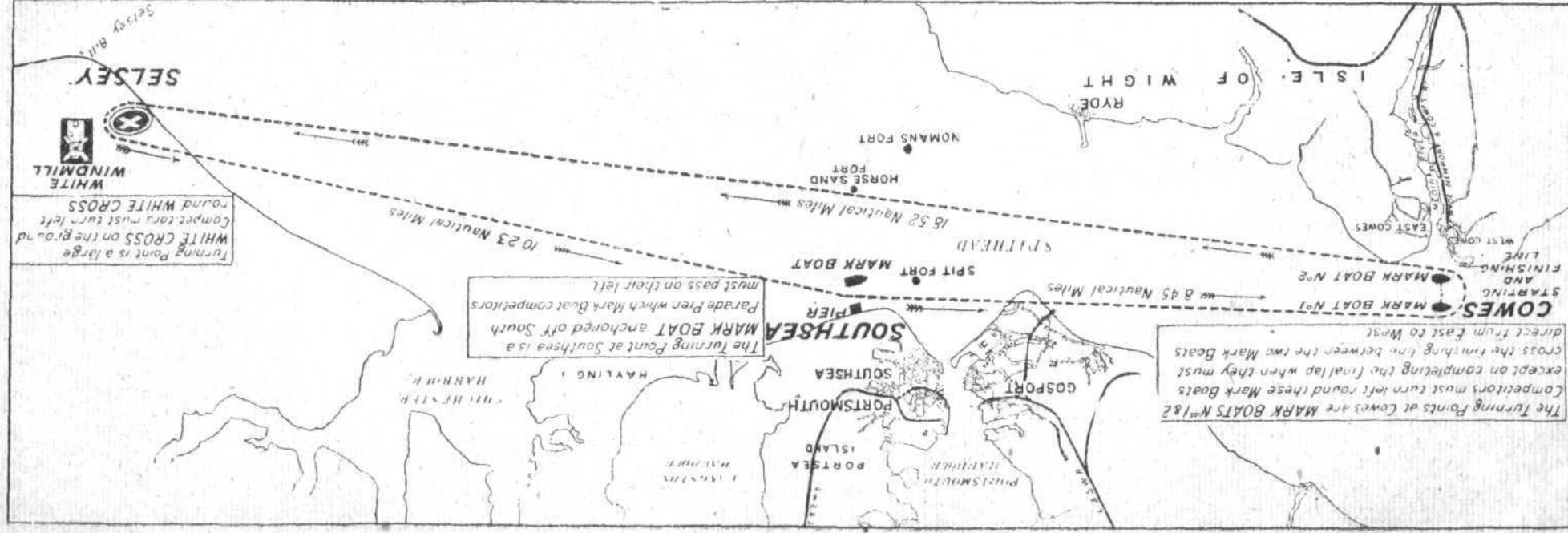
Pilot, Lieut. Irvine, U.S.N.; machine, Curtiss-Navy Racer C.R.3; engine, 450 h.p. Curtiss D.12.

Pilot, Lieut. Rittenhouse, U.S.N.; machine, Curtiss-Navy Racer C.R.3; engine, 450 h.p. Curtiss D.12.

Pilot, Lieut. Weade, U.S.N.; machine, Navy T.R-3A; engine, 300 h.p. Wright.

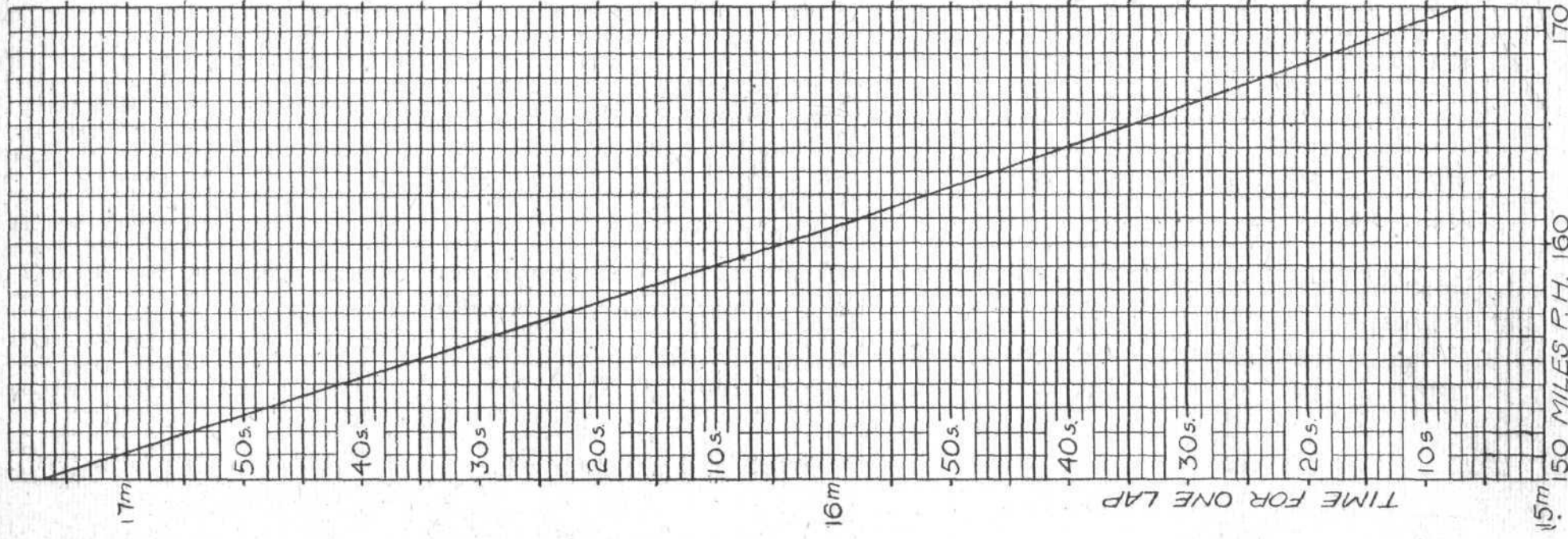
Towing her out
for a test: The
Navy-Curtiss,
photographed off
Cowes. Note the
clean design.





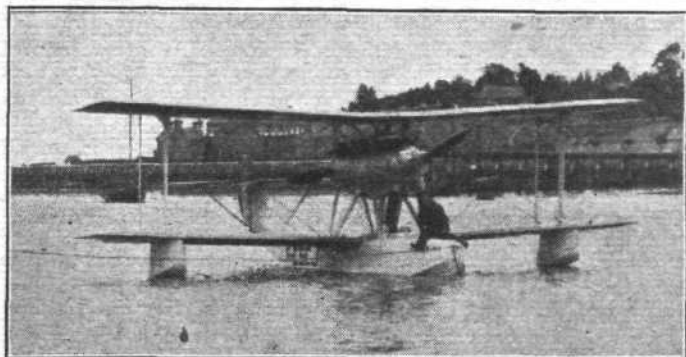
Map of the course over which the machines will fly tomorrow. The course, which has a length of 42.86 land miles, has to be covered five times, giving a total distance of 186 nautical miles, or 214.3 land miles.

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THE SCHNEIDER CUP RACE : Graph for finding speed of competitors from time taken to cover one lap of the course. Probably the average times will be 16 to 16½ minutes.

The British team will be composed as follows :—
Pilot, Capt. Biard ; machine, Supermarine "Sea Lion II" ; engine, 500 h.p. Napier "Lion."
Pilot, R. W. Kenworthy ; machine Blackburn "Pellet" ; engine, 500 h.p. Napier "Lion."



THE SCHNEIDER CUP RACE : One of the Latham machines photographed at Cowes just after its arrival. This machine was flown across by Duhamel. It is fitted with two 400 h.p. Lorraine-Dietrich engines.

The three French representatives will be :—
Pilot, Hurel ; machine, C.A.M.S. 38 ; engine, 360 h.p. Hispano-Suiza.

Pilot, Duhamel ; machine, Latham L.1 ; engines, two 400 h.p. Lorraine-Dietrich.

Pilot, Capt. Teste ; machine, Blanchard C.1 ; engine, 400 h.p. "Jupiter."

In addition, the French have two machines and two pilots in reserve. These are a C.A.M.S. 36A, with 360 h.p. Hispano-Suiza engine, to be piloted by Pelletier d'Oisy, and a Latham L.1, with two 400 h.p. Lorraine-Dietrich engines, to be piloted by Lieut. Benoit.

The Machines

It is not possible this week to give a complete description of the competing machines, as not only will space not allow, but in some instances detail information is not available. A few brief notes may, however, be of interest.

The American machines are all of the twin-float type, whereas both British machines and all the French are of the flying boat type. The ill-fated Navy-Wright was fitted with the most powerful single power unit in the race, and was probably the fastest of all the machines entered, being

like that to be flown to-morrow they may be quite as fast as the Navy-Wright owing to their smaller weight and smaller moment of inertia, making them handier for making sharp turns. They are, at any rate, formidable opponents, and if the weather is reasonably calm they will be very hard to beat. Two of these machines are entered, and are, as far as can be ascertained, identical.

The spare American machine, the Navy T.R.-3A, with 300 h.p. Wright engine, is an older type, and as its engine is of fairly low power it will probably not prove nearly as fast as the two C.R.-3's, although it is certainly by no means a machine to be despised.

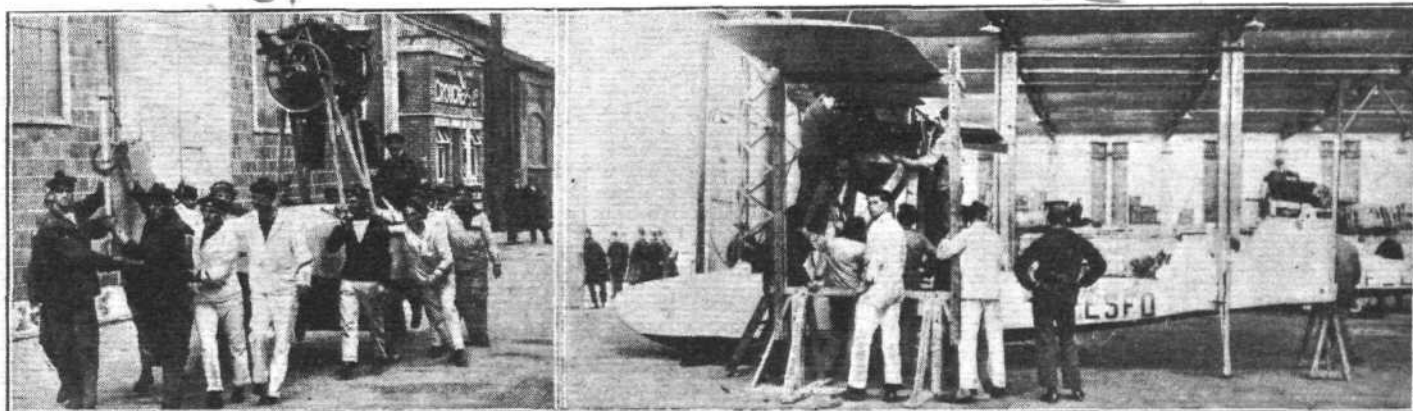
The British Machines

At the moment of writing the Blackburn "Pellet" is an entirely unknown quantity, and no matter how excellent the machine, the fact remains that it has but just been finished, and its pilot, Mr. Kenworthy, has not had an opportunity of becoming thoroughly acquainted with it. This, naturally is a very serious handicap, especially as all the other pilots in the race have been getting in a lot of practice on their machines, partly in home waters and partly over the actual course. The "Pellet" is a flying boat with Napier "Lion" engine. It is of the type now commonly called "sesquiplan," i.e., having a very small bottom plane and a large top one. The engine in the "Pellet" is mounted above the top plane and drives a tractor airscrew.

Britain's mainstay in the race—and it may well prove our only representative—is the Supermarine "Sea Lion II," fitted with a Napier "Lion" engine. It was on a similar machine that Captain Biard won the Schneider Cup Race at Naples last year, and thus brought this year's race to England.

The "Sea Lion II" is a typical Supermarine flying boat with boat-built hull of approximately circular cross section, to which the two steps have been added as separate structures. The pilot sits in front of the wings, and the Napier "Lion" engine is mounted on struts between the planes and drives a pusher airscrew. The engine struts are entirely separate from the wing structure, so that the wings can be dismantled without interfering with the power plant. This year's machine is considerably faster than was last year's Schneider Cup winner, and altogether we have in the Supermarine a worthy representative, although the fact that it may prove our only one is naturally very much to be regretted.

The third machine entered by Britain for the Schneider Race was the Sopwith-Hawker biplane on which Lieut. Longton flew in the Aerial Derby. For the Schneider race the machine had been fitted with floats, and thus would have provided this country with one machine of the same type as the fast American seaplanes. The Bristol "Jupiter"



THE SCHNEIDER CUP RACE : On the left, one of the C.A.M.S. racers is seen being transported up to S. E. Saunders' works, and on the right the same machine being rigged by a few professionals assisted by enthusiastic amateurs.

credited with a speed over a measured course in America of over 177 m.p.h. Thus, in spite of the accident which put this machine out of the running, we have thought that a fairly detailed description might be helpful. This description, which was written and set up in type before the regrettable crash, will be found on p. 575.

The Curtiss-Navy racers, although fitted with smaller engines (450 h.p. Curtiss D.12) are smaller machines than was the Navy-Wright, and are probably very nearly as fast. In fact, it seems likely that over a triangular course

engine fitted ran excellently in the Aerial Derby, and there is no reason to doubt that it would have behaved equally well in the Schneider Race. Unfortunately, during a trial flight some weeks ago a spinner fitted to the propeller blew off and got wedged in the bracing wires, with the result that the machine had to be forced landed in a small field, being entirely crashed in the process, although Lieut. Longton was, very fortunately, uninjured. Mr. Sopwith has always been so prominently associated with air racing that the absence of his machine is greatly to be regretted, the more



THE SCHNEIDER CUP RACE: Discussing the chances of Britain in the race. From left to right, Col. Alec Ogilvie, Col. Frank McClean, Mr. Hubert Scott-Paine, and Commander Harold Perrin.

so as it was a Sopwith seaplane which first brought the Schneider Cup to this country in 1914.

The French Machines

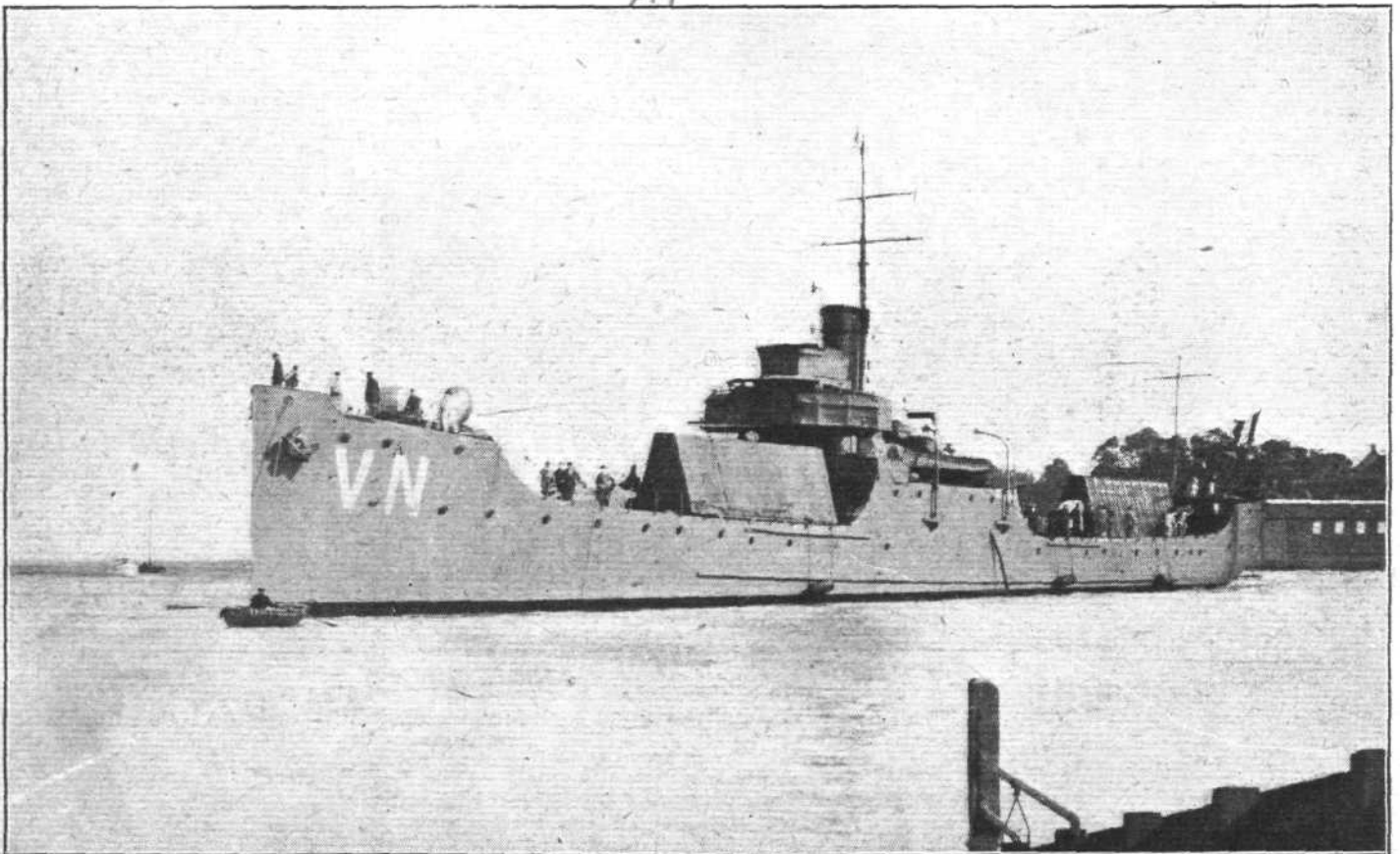
Very little is known about the French representatives in the Schneider contest. The two C.A.M.S. racers are single-engined flying boats fitted with 360 h.p. Hispano engines. As the accompanying photographs will show, they are of usual C.A.M.S. design, very clean and well

streamlined. As distinct from the Supermarine boat they have flat sides and a concave step, a form of hull which probably M. Conflenti, the C.A.M.S. chief designer, has done more to develop than any other individual designer. A peculiarity of the hollow step is that the boat, on taxiing, does not throw up any spray outwards and aft, as do our boats, but rather push the water up ahead of them until reaching the "hump speed" when they seem to climb on top of the hill of water and get away. Nothing is known about the speed of the C.A.M.S., but both Mr. Santoni and M. Conflenti are known to have been associated in the past with very fast machines, and it may be taken for granted that their 1923 types will be no exceptions to the rule.

The Latham flying boats are twin-engined machines, with two 400 h.p. Lorraine-Dietrichs placed tandem-fashion between the hull and the top plane centre-section. The machines are of small size, considering their power, and have but one strut on each side. The boat hulls are of the flat-sided type, but differ from the C.A.M.S. in that there is a V-bottom. One of our photographs, taken immediately after the arrival at Cowes on Tuesday, shows the first of the Lathams to arrive, piloted by Duhamel. This machine is the F-E.S.E.J. Both that and the second Latham, piloted by Benoit, flew over from France.

With reference to the Blanchard machine nothing is at present known, and at the moment of writing it is reported that this machine is held up by bad weather in the Channel, and that it has been formally withdrawn from the race. As this machine is fitted with a French-built "Jupiter" engine its absence is much to be regretted. Presumably, its place in the race will be taken by either the C.A.M.S. 36A or the second Latham.

The accident to the Navy-Wright seems to have been caused in a most peculiar way. This machine was fitted with metal propeller, and it is reported that the propeller burst while the machine was flying in the vicinity of Selsey Bill, puncturing the floats and causing the machine to crash on alighting. Fortunately, the pilot, Lieut. Gorton, U.S.N., was uninjured. The machine was later towed up to Southsea, where it rested upside down, with its 700 h.p. engine submerged.



THE SCHNEIDER CUP RACE: How the French Government help their 'Plane constructors. The C.A.M.S. machines competing in the Schneider Cup Race were conveyed to Cowes by the Verdun (seen above on arrival), this action but emphasising the support given by the Government to help capture the coveted trophy, both in striking contrast to the Home Authorities "letting-the-De'il-take-the-hindermost" attitude.

THE AMERICAN NAVY-WRIGHT SCHNEIDER CUP CHALLENGER

In our issue of FLIGHT for September 13 we gave an illustration of the Navy-Wright seaplane, one of the American entries for the Schneider Cup Seaplane Race. We have now received some particulars of this machine, which we give herewith, together with another illustration. From the latter a much better idea of the general design—strutting, etc.—may be obtained.

The N.W.-2, as it is called, is a biplane, powered with a 700 h.p. Wright T type engine, and is said to be the highest

The special racing propeller which will be used in the race is the culmination of long-continued experiments on model propellers in America. It is a three-bladed propeller, the blade being forged duraluminum, locked by a screw and wedge adjustment to a forged steel propeller hub. In order to give maximum clearance from the water a three-bladed propeller was decided on instead of the conventional one. The section of the propeller is such that no loss of efficiency results in the use of this smaller diameter section. It is of interest to note

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○ The ill-fated Navy-Wright, photographed at Cowes shortly before the flight that ended in a crash. The propeller is stated to have burst and punctured the floats, with the consequence that the machine crashed when the pilot attempted to alight.

○ ○ ○ ○ ○ ○ ○ ○ ○



powered seaplane in the world. This 'plane will be piloted by Lieut. A. W. Gorton, U.S.N., and because of its airworthiness and seaworthiness will, it is believed, make an excellent record for itself in this event. On her trial trip the N.W.-2 exceeded the existing world seaplane record, averaging better than 180 miles per hour over a 2½-mile course.

It has a wing spread of 28 ft., height 11 ft. 7½ ins., and length 28 ft. 4½ ins. The wing construction is cellular with ply-wood covering and wing radiator on the top and bottom side of the upper wing and top side of the lower wing.

The oil is covered by a water-cooler, arranged so that when the engine is first started and the oil cold, the oil temperature

the extreme thinness of the propeller duraluminum blades when compared with the customary thickness of a wooden propeller of sufficient strength to absorb the tremendous horse-power generated by the Wright engine.

The N.W.-2 is supported with twin floats, which makes for more manœuvrable and seaworthy characteristics than a single float with smaller ones at the end of each wing, and also aids in a fast landing on the water, regardless of whether it is rough or smooth, and amid varying wind conditions.

The vision is particularly good, being one of the most important fighting characteristics of this 'plane.

The craft is constructed with wing radiators built in sections,



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The American Navy-Wright Schneider Cup Challenger: A three-quarter rear view of the machine "dry." From this view a good idea of the strutting arrangement may be obtained. Note the wing-radiators and shape of the wings.

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regulator transmits heat from the cooling water through a tube to the oil, and when the oil is up to proper temperature the flow of heat reverses and the oil temperature regulators act as a cooler and cool the lubricating oil.

The fuselage is of welded tubular steel throughout, and the tail surfaces are also of steel frame work. Very deep corrugations are used to give the maximum amount of cooling surface per square inch of wing area without detracting in any way from the speed characteristics and the lift of the wing.

which are easily removable. The engine is built for heavy work, and shows a surprisingly light weight for the horse-power which it generates. It is a high compression, 700 h.p., 12-cylinder, V-type, water-cooled engine, weighing 1,150 lbs.

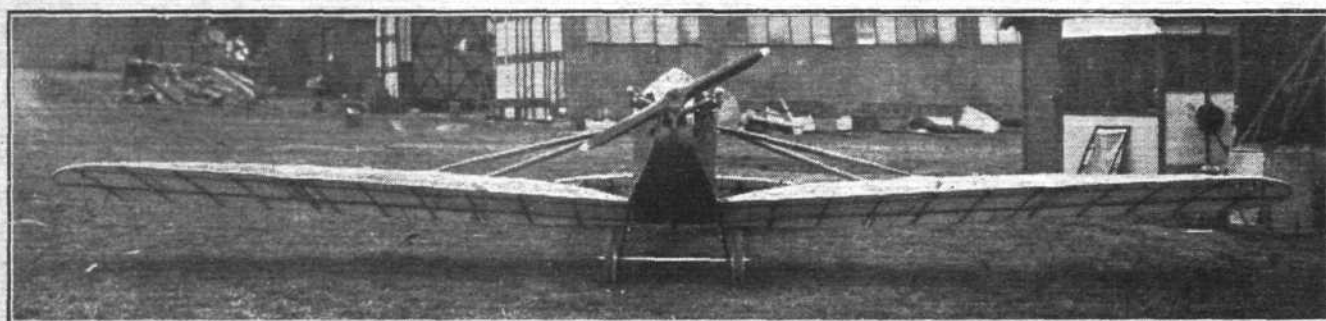
Another American entry is the T.R.-3A, equipped with a Wright E-4 engine, rated at 200 h.p., but which has pulled as high as 290 h.p. in the dynamometer room. The T.R.-3A is a single-seater biplane, built for scouting purposes. Wing radiators have been installed in both upper and lower panels.

THE DE HAVILLAND 53 LIGHT 'PLANE

750 c.c. Douglas Engine

WHEN the rules governing the light 'plane competition for the Sutherland and *Daily Mail* prizes were first published we expressed doubt as to the utility of offering such large amounts for one particular performance, *i.e.*, economy, and pointed out that under the rules, and given a calm day, there was nothing to prevent some freak machine with a very small engine and light loading from walking off with the prizes, leaving machines of much greater practical value unrewarded.

calm day, would be of little practical value afterwards, and have, without exception, decided in favour of power and wing loadings which will give machines with a reasonably good performance and a sufficient margin of power to make them flyable even in fairly strong winds. This is distinctly encouraging, as it shows the belief among firms in the aviation industry that it is worth while designing not only and solely for the competitions, but also for the future.



THE D.H. 53 : Front view, showing dihedral, wing bracing, struts, etc.

The addition of the Abdulla prize for speed over a measured course has helped to a certain extent in so far as it encourages features other than "economy." Nevertheless, the risk of a freak machine winning the main prizes is by no means eliminated, and we still hold our original opinion that much more good could have been done by splitting up the very

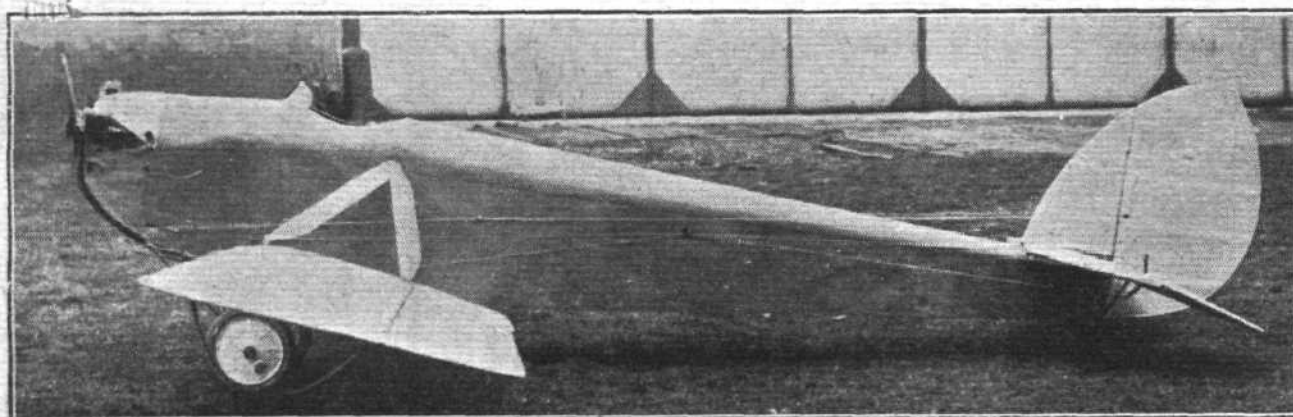
A case in point is the new de Havilland light 'plane, the D.H. 53, which forms the subject of our full-page scale drawings and other illustrations this week. This machine is emphatically not a freak in any way, and frankly, if the week at Lympne provides a couple of days of flat calm, the D.H. 53 will not be over likely to collect the mileage per gallon prizes.



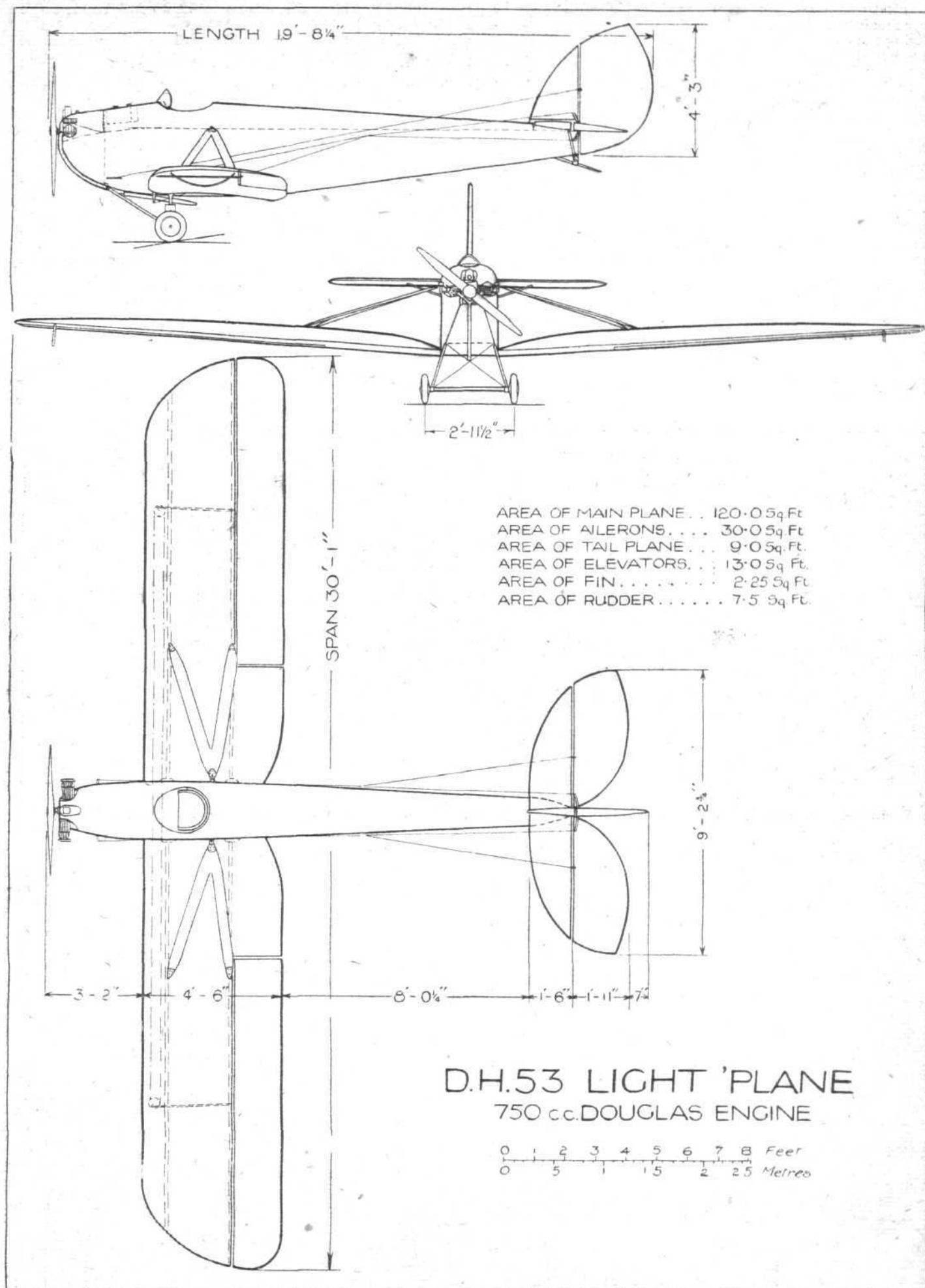
THE D.H. 53 : Three-quarter rear view. This illustration gives a good idea of the shape of wings and tail. It also indicates that the view from the pilot's cockpit is exceptionally good.

large amounts offered into a number of smaller awards, points being given for various features and performances. It is, therefore, all the more gratifying to find, on examining a number of the machines built for the competitions, that British constructors have, on the whole, taken the view that a machine with the smallest possible engine, although having a good chance of winning the economy competition on a

On the other hand, should the week prove fairly windy this machine should show up extremely well, both in the "economy" and speed contests. Furthermore, if the Lympne meeting results in the development of a general interest in the low-power aeroplane and a real demand arises for a machine sturdy enough to be handled by a man of average skill in piloting, and cheap enough to buy and operate to make it a



THE D.H. 53 : Side view.



THE D.H. 53 LIGHT 'PLANE : General Arrangement Drawings to scale.

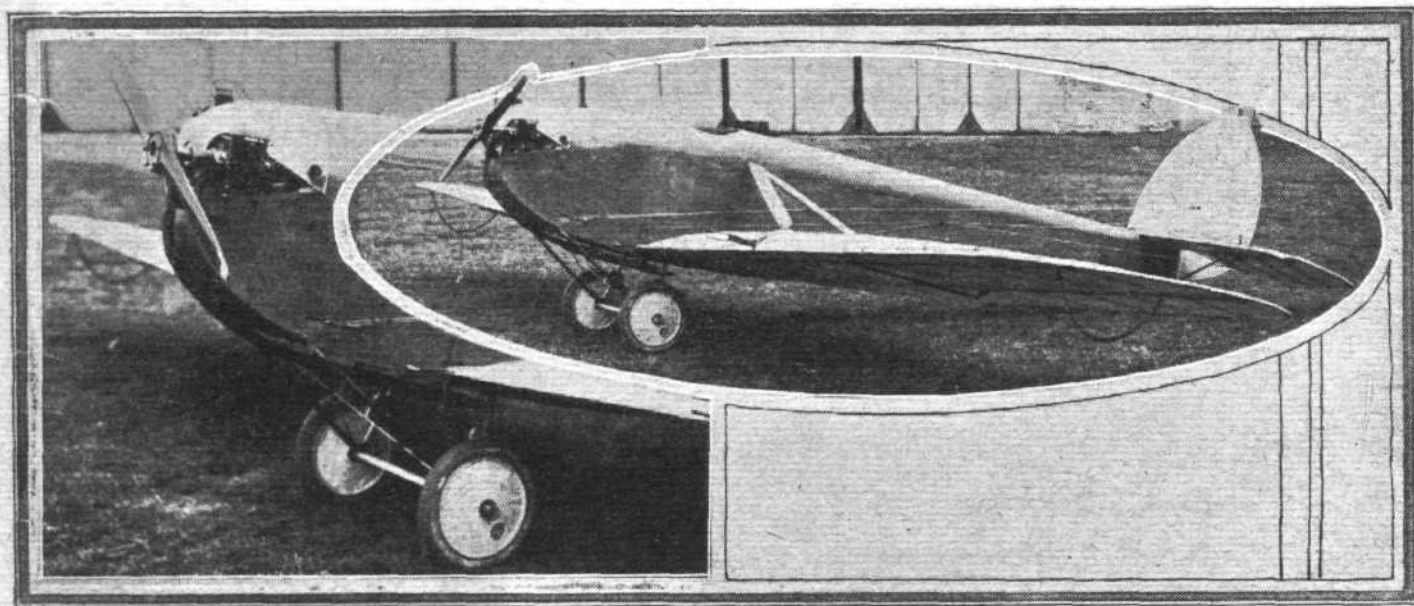
practical proposition, the D.H. 53 should certainly come as near meeting the requirements as any machine with which we are acquainted. Thus, in the following notes we are considering the machine in terms of practical utility rather than as a special design produced to win a competition bordered by narrow limits.

The de Havilland 53 is a monoplane with the wing placed low. In Germany this type is termed a "tiefdecker," as distinct from the monoplane, having its wing resting on top of the fuselage and called a "hochdecker." It seems worth while to coin a word to describe the type in English, but until one has been selected we may refer to the type as a low-wing monoplane, reserving for the machine with the wing on top the term high-wing monoplane, and for the type in which the wing is raised above the fuselage on struts the expression which gained currency during the War, *i.e.*, parasol monoplane. The D.H. 53 light 'plane, then, is a low-wing monoplane, with the two halves of the wing hinged to the fuselage and braced by compression struts above the wing.

This design was not chosen until after a very thorough investigation of the relative merits of the high-wing and low-wing types. The former possibly gives a slightly better aerodynamic efficiency, and it also has the advantage, from the structural point of view, that the wing struts are working in tension instead of in compression, which means that a certain amount of weight can be saved. The latter has many practical advantages, and was chosen for these by the

wing is likely to be rather below the angle corresponding to maximum lift, unless the wing is set at a considerable angle to the fuselage, which means a slight increase in resistance, owing to the fact that the machine will fly tail-up when the engine is running at full power. The choice, it will be seen, is a matter of compromise, and in the D.H. 53 the usual undercarriage has been chosen, giving a ground angle of approximately 13 degrees to the wing when the tail skid is resting on the ground. The angle of incidence in relation to the fuselage is 3 degrees.

Another advantage of the low-wing type is that in designing it is possible to shift the pilot fore and aft within fairly wide limits without interfering with the wing at all. In the high-wing type it becomes necessary, usually, to cut an opening in the centre of the wing, which is generally considered to affect adversely the aerodynamic characteristics of the wing. Also the view obtained in the low-wing type is exceptionally good, except straight down. In the de Havilland light 'plane the pilot is seated sufficiently far forward to be able to see in a forward and downward direction to within a few feet ahead of the machine, so that both for landing and taking off his view should be all that can be asked. There is, perhaps, a slight objection to the low-wing type on the score that if the machine turns over on landing there is nothing to protect the pilot's head, whereas in the high-wing type the wing is between him and the ground. Experience alone will show whether or not there is justification for this contention.



THE D.H. 53 : Three-quarter front view, and, on the left, a larger view of the engine and undercarriage.

designers of the D.H. 53. To begin with, the low-wing monoplane has its wing much closer to the ground, so that a not inconsiderable "cushioning effect" is obtained on landing. Then there is the question of stability on the ground. In the high-wing monoplane, where the distance from the wing tip to the ground is considerable, a very wide wheel track must be provided to prevent the machine from leaning over so far that a wing tip touches the ground. In this connection it should be remembered that where the wing is a considerable distance above the ground, the angle of the machine may be such that a wing tip skid would be almost useless as the tip would touch before the skid, unless the latter is very deep. In the low-wing type, on the other hand, wing tip skids of very moderate depth are elevated but a very short distance above the ground, and consequently touch as soon as the machine heels over to quite a small extent. The result is that the undercarriage itself need not be of very wide track. In fact, if it is desired to place the wheels inside the fuselage with their lower portion projecting there does not seem to be any objection to doing so with the low-wing type, as even the narrow wheel track thus afforded should be sufficient when assisted by wing tip skids coming down fairly close to the ground.

In the de Havilland light 'plane there is an exposed undercarriage, more or less, of usual D.H. Vee-type, but this has, we fancy, been chosen for reasons other than width of track, the designers holding that with the wheels partly enclosed in the body, the clearance between the latter and the ground is very small, so that taking-off may be hindered by the drag caused by long grass. Also, the ground angle of the

These light 'planes land so slowly and are so controllable that except as a result of very clumsy piloting there should be few instances of machines turning over.

Constructionally the D.H. 53 has absolutely nothing of the freak about it, and as a result of the constructional methods employed being along usual lines the factor of safety in the wing structure is everywhere at least five. This is probably more than is strictly necessary in a machine of this type, certainly more than enough for the competitions, but on the other hand for practical use under ordinary flying conditions the extra strength is worth having, especially since it means that the machine is sufficiently robust not to be easily damaged in handling on the ground, in the shed, etc. From the potential user's point of view this a point of importance.

The fuselage is of similar construction to the larger de Havilland machines in that it is a light frame structure covered entirely with three-ply wood. There is thus no wire bracing to look after, and this form of construction has been found in practice to stand up very well to wear and tear. The four spruce longerons are connected at intervals by vertical and horizontal struts, but these simply abut on the longerons, and are not secured to them except by way of the three-ply covering. The function of the fuselage struts really is more that of preventing the three-ply covering from buckling than to tie together the four longerons. In section the fuselage is rectangular, with a fairly deep cambered deck. At certain points, where local considerations demand it, the usual spruce cross struts are supplanted by steel tubes. This, for instance, is the case at the point where the wing bracing struts meet the fuselage.



Married

Captain PHILIP G. MARR, late R.A.F., younger son of the late Mr. Alexander Marr and Mrs. Marr, of Englefield Green, Surrey, was married on September 15, at St. Paul's, Knightsbridge, to Miss ESTELLE AGNES CAYZER, second daughter of the late Sir Charles Cayzer, Bt., and Mabel Lady Cayzer, of Woodbury, Farley Hill, Berks.

Wing-Commander L. A. PATTINSON, D.S.O., D.F.C., M.C., R.A.F., younger and surviving son of Mr. and Mrs. Hugh Lee Pattinson, of Lowlynn, Beal, Northumberland, was married on September 12, at St. Martin-in-the-Fields, Trafalgar Square, to MABEL LOWLAND CAPPER, A.R.R.C., Croix de Guerre, elder daughter of Colonel William Capper, C.M.G., and of Mrs. Capper.

To be Married

The engagement is announced between Flight Lieut. J. COTTLE, M.B.E., D.F.C., only son of Mr. and Mrs. A. Cottle, Plympton, Devon, and ELEANOR, daughter of the late A. JONES WILLIAMS and Mrs. A. JONES WILLIAMS, 134, Kingscliff, Brighton, and niece of Colonel Jones Williams, Gwy Parc, Breconshire, and grand-daughter of the late C. H. W. Gordon, Newtimber Place, Sussex.

A marriage has been arranged between Major JOHN OGILVIE DAVIS, R.F.C., M.C., Croix de Guerre with palm leaves, younger son of the late Theodore Davis, M.D. Lond.,

F.R.C.S. Eng., of Clevedon, Somerset, and Mrs. Theodore Davis, of 1, Elystan Mansions, London, S.W. 3, and MARIA ESTHER ARTAZA MATTA, daughter of Don ELADIO ARTAZA and the late Doña ESPERANZA MATTA DE ARTAZA, of Viña del-Mar, Valparaiso, Chile.

The engagement is announced of Flight-Lieut. GODDARD, R.A.F., youngest son of Dr. Goddard, O.B.E., and Mrs. Goddard, of Harrowdene House, Wembley, and MILDRED, younger daughter of the late Mr. A. M. INGLIS and Mrs. INGLIS, of The Hollies, Bickley.

The marriage of Flying Officer A. S. KEEP, M.C., R.A.F.R. (late Capt., R.A.F.), and MARJORIE CHRISTINE, second daughter of Mr. and Mrs. BRUCE, The Knoll, Yeovil, will take place on October 3, at St. John's, Yeovil.

The engagement is announced of Captain D. NICOLSON, M.I.N.A. (late H.L.I., now Air Ministry), eldest son of Mr. and Mrs. W. G. Nicolson, of Park Drive, Glasgow, and BESSIE, eldest daughter of Mr. and Mrs. GEORGE BEALE, of Elmwood, Sudbury, and The Grange, Claybrooke

Killed

Captain DEREK ALLIN ADEY SHEPPERSON, late R.A.F., who was killed while flying at Nashville, Tennessee, U.S.A., was the only son of the late Mr. Claude Allin Shepperson, A.R.A., for many years a popular member of the staff of *Punch*. He was born in 1898, and educated at Tonbridge School.

LONDON TERMINAL AERODROME

Monday evening, September 24, 1923.

MANY of the temporary time-tables which have been introduced to bridge over the gap between summer and winter services are now in operation. The Daimler Airway have altered the time of the departure of their Berlin machine from 9.30 a.m. to 8.30 a.m., which allows the machine to cover the journey to Berlin in a single day. The machine from Berlin also starts at 8.30.

Flights to Brussels Suspended Temporarily

OWING to the fact that the Belgian authorities have started levelling operations on the Brussels aerodrome, thus rendering it unfit for landing and taking off, the D.H. 34's of the Instone Air Line have suspended their London-Brussels service and are concentrating on the non-stop London-Cologne flights. Their machine now leaves London at 9 a.m., while the return service leaves Cologne at 10 a.m. This service will be augmented according to traffic requirements. In addition to these passenger machines there is, of course, the "Vimy" freight-carrier which still makes the outward journey to Cologne one day, returning to London the next, while there is so much freight that any spare room on the regular machines can easily be filled. The Vickers "Vulcan" which the Instone Air Line retain is also now flying on this route, carrying five passengers, or their equivalent in goods. It is probable that this machine will be turned into an air freighter in the near future.

Detective Work at the 'Drome

THE C.I.D. men stationed at the aerodrome to watch for undesirables either leaving or entering the country have been

quite busy of late, and have had one or two exciting cases. One rather humorous incident occurred when a youth who had, it is reported, stolen £20 from his mother in Liverpool, was captured at the aerodrome spending the last guinea on a joy-ride prior to walking back home and becoming a prodigal son. It is probable that his capture was to his own advantage as, instead of walking back, he would be taken back by train. At least one case of cocaine smuggling by air has been discovered and the smuggler caught. Another activity in connection with the Home Office officials at the aerodrome is the prevention of foreigners seeking employment from entering this country. Quite a number of these, who have at one time or another been turned back at our southern ports, have attempted to come through by air, imagining that the scrutiny at the air-port would be less efficient than it is at the sea-ports. These hopes, however, have been doomed to failure, and they are sent back at the air transport company's expense by the next machine.

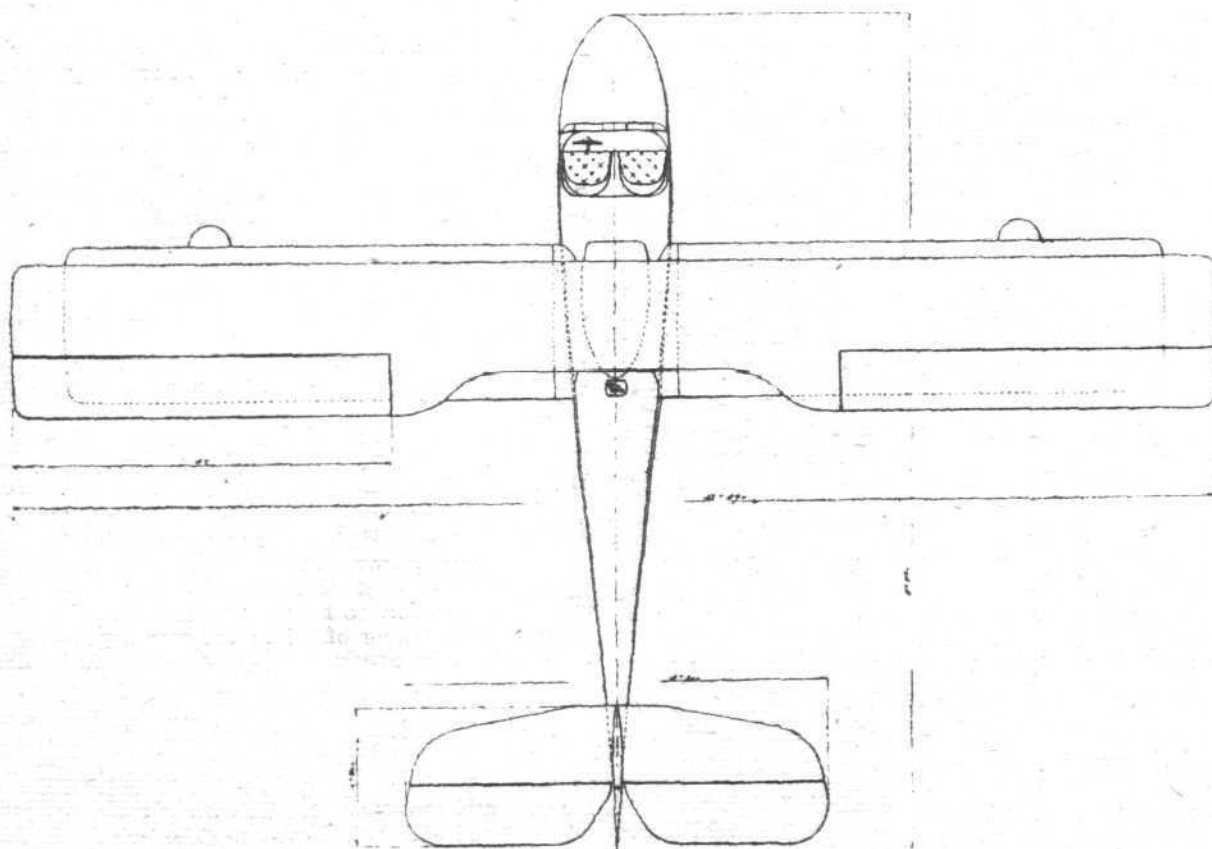
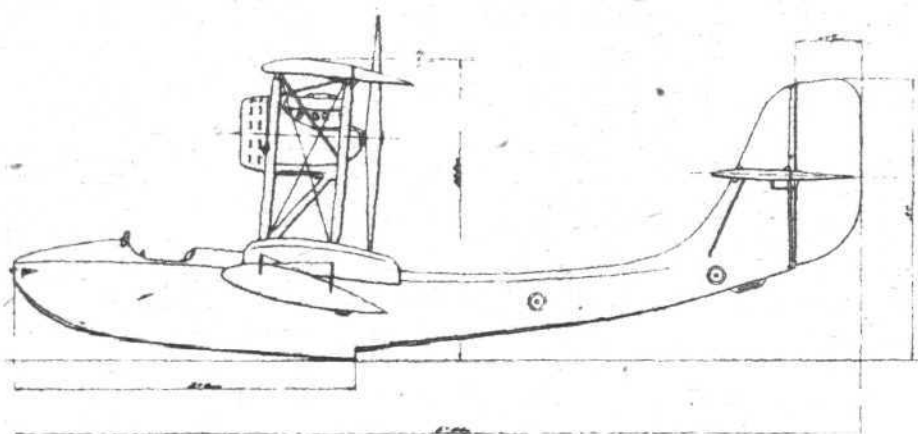
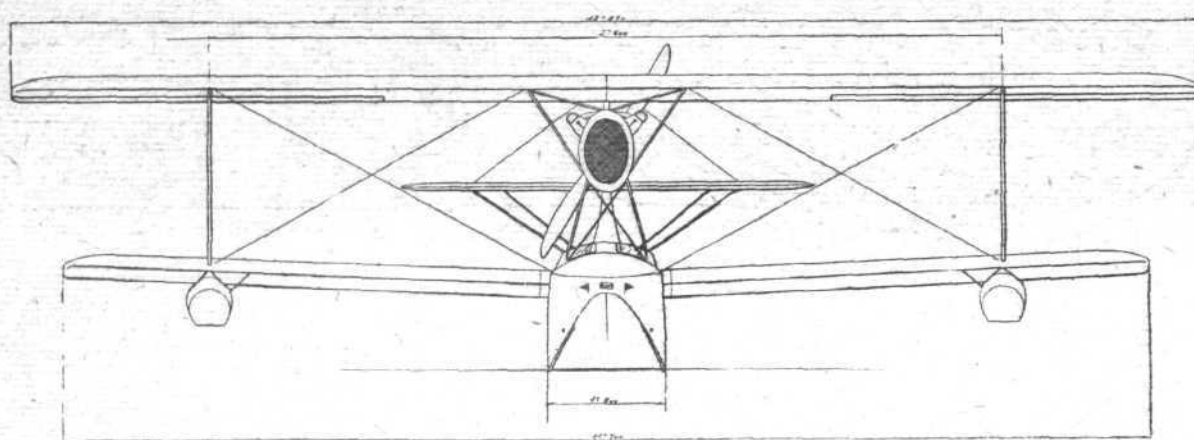
The number of marks going by air is ever-increasing, and today what is probably the largest consignment left on a D.H. 34. In addition to this the Surrey Flying Services D.H. 9 is busily employed flying backwards and forwards as a special machine, with consignments of marks.

A noteworthy fact, and one very gratifying to air transport enthusiasts, is that although the Daimler Airway have increased their fare to Berlin from £6 10s. to £8 2s. 6d., there is very little falling off in passengers. In fact, what little there is can be attributed to the usual seasonal decline in bookings.

Aeromarine Night Mail 'Plane

TRIAL flights of the Aeromarine U.S. air mail night service airplane, equipped with two 240,000 beam candle-power lights, were completed early this month, and the machine was accepted by Superintendent J. E. Whitbeck of the Eastern Division, Air Mail Service. This machine is the first of two to be delivered by the Aeromarine 'Plane and Motor Company, and was designed and constructed on an order from the Mail

Service in 122 working days. It is a biplane with an all-metal fuselage and tail surfaces. The wings are of wood construction covered with doped cotton. The petrol tanks are in the upper wing and away from the fuselage. The mail compartment is of 47 cubic ft. capacity, capable of carrying 42,000 letters. Tests showed a high speed of 112 m.p.h., ceiling of 15,800 ft. and a climb of 6,800 ft. in 10 minutes, with a low speed of under 44 m.p.h.



THE LOUIS SCHRECK F.B.A. FLYING BOAT, TYPE 17 H.E. 2 : General Arrangement Drawings, supplied by the constructors. (See page 583.)

there are six pins (with quick-release locking wires) to undo, when the wing can be unshipped, the aileron control cables having, of course, first been cast off. The whole operation should not occupy more than a few minutes. The ailerons, it will be seen, are of large area, and the de Havilland patented differential aileron control is used. The bracket supporting the sprocket of this control is shown in a sketch. The aluminium plate on the lower surface fits flush into the wing, the only projection being the bolt to which the aileron tube from the king-post is attached. The whole makes an exceptionally clean job, and seems to be worth the extra trouble that has been taken over it. The action of the de Havilland type of differential control is, of course, to cause the upward-moving aileron to travel through a greater angle than that of the downward-moving aileron on the opposite side. Thus the yawing moment set up is smaller than where the lower flap moves through a large angle and offers a great amount of resistance. In the D.H. 53 the angles chosen for the point of attachment of the crank lever control tube is such that with a certain amount of stick movement the downward-moving flap reaches a maximum, and then, as the upward-moving flap rises further, begins to rise again. Thus, at no time during the full movement of the stick does the lower flap exceed a certain angle, pre-determined by the setting of the tube on the sprocket. During preliminary flying tests the D.H. 53 has been found to be very controllable, and it appears that lateral control is effective right up to, or even past, the stalling angle. The longitudinal controls are also very effective, while directional control is quite exceptionally good, the machine handling well even when taxiing at low speed on the ground.

The 750 c.c. Douglas engine is very simply and neatly mounted on a flat horizontal engine plate, the "feet" of which rest on the longerons, as shown in a sketch. The lower portion of the crank-case, which is bolted to the upper and has semi-circular grooves for mounting in a bicycle frame, has been omitted, and the engine rests with the flat bottom of its crank-case on the engine plate. A small cowl fits over the top of the engine, and makes a very neat nose. As direct drive is used a special propeller boss has been made, which

is secured to the tapering end of the crank-shaft. The diameter of the propeller varies from 4 ft. to 4 ft. 9 ins., according to whether the machine is to be used for speed work or for mileage-per-gallon competition.

A small petrol and oil tank is mounted aft of the engine bulkhead, and although it is not placed particularly high, there is sufficient head to give direct gravity feed to the carburettor, the fuel being led to the engine through a length of "Petroflex" tubing. A feature of the D.H. 53 which should particularly appeal to the owner-pilot of the future is the effective silencing of the engine. From the illustrations it will be seen that short exhaust pipes are taken from each cylinder and join a long collector pipe curving underneath the bottom of the fuselage. When the engine is running only a pleasant purr is heard, while a two-cylinder engine with open exhaust makes quite an unpleasant noise, owing to the fact that with but two cylinders there is no overlapping of the exhausts, which are consequently heard as distinct and separate cracks.

The undercarriage of the D.H. 53 is of the usual de Havilland type with the exception that no oleo gear is fitted. On the larger machines this type of chassis works extremely well, and there is no reason to doubt that it will be equally suitable for the small machine.

The tail is very similar to that of last year's D.H. gliders in general shape and construction, and rudder and elevator are operated by cables placed externally on the fuselage where they can be readily inspected.

All the main dimensions of the D.H. 53 light 'plane are shown on the accompanying general arrangement drawings. The empty weight of the machine is 310 lbs., "dry." With a 168-lb. pilot, one gallon of petrol and half a gallon of oil the total loaded weight is 490 lbs. As the wing area is 120 sq. ft. the wing loading is just over 4 lbs. per sq. ft. The maximum speed is probably in the neighbourhood of 70 m.p.h., while the landing speed appears to be about 30 m.p.h. As already stated, the machine is very manoeuvrable, and should appeal to the private owner-pilot. Two are being built for the competitions, one of which will be piloted by Captain de Havilland himself.

ROYAL AIR FORCE CADETS

THE Air Ministry announces that an examination for the entry into the Royal Air Force of cadets with a view to their becoming permanent commissioned officers after a two years' course at the Royal Air Force Cadet College, Cranwell, Lincolnshire, will be held on November 20 and following days.

The closing date for entry for this examination is October 4, and no form of entry will be accepted under any circumstances after October 18. Applications should be made to the Secretary, Civil Service Commissioners, Burlington Gardens, W. 1.

The number of cadetships open to competition on this occasion owing to the authorised expansion of the Air Force will not be less than 45. This number will include any candidates who may be awarded King's Cadetships or Honorary King's Cadetships.

There will also be a grant of not less than one prize cadetship, and in addition two Wakefield scholarships of the value of £75 each are offered for competition among candidates whose parents or guardians are in reduced circumstances, with preference to cases due to the late War.

Candidates must be physically fit, and have attained the

age of 17½ and not exceeded the age of 19 on January 1, 1924.

The official medical examination will take place in London about the same date as candidates attend for the educational examination. It has been found that certain candidates in previous examinations have failed to attain the standard of physical fitness required owing, it is thought, to their having neglected to take outdoor exercise while preparing for the educational examination, and it is, therefore, desired to direct the attention of candidates to the desirability of taking proper care of their health in this respect.

The entrance examination is the same as that for the entry of cadets to the Royal Military Academy, Woolwich, and the Royal Military College, Sandhurst, the examination for entry to the three colleges taking place simultaneously.

Candidates entering their names for the examination for either of the two Army colleges can also submit their names at the time of application for entry into the Royal Air Force Cadet College as a second preference.

The competition will be conducted in accordance with the regulations for the Royal Air Force (Cadet) College, Air Publication 121, which may be obtained from H.M. Stationery Office, Imperial House, Kingsway, W.C. 2, price 9d.

RADIO RESEARCH BOARD REPORT

THE first Special Report of the Radio Research Board (Department of Scientific and Industrial Research) has just been issued, and is entitled "A Discussion of the Practical Systems of Direction-Finding by Reception," by R. L. Smith-Rose, Ph.D., M.Sc., and R. H. Barfield, M.Sc. This paper, which is the first of a series of special reports dealing with the work of the Radio Research Board, describes investigations which have been carried out on behalf of the Directional Wireless Committee of the Board, chiefly at the Board's Station at the Admiralty Compass Observatory, Ditton Park.

The subject-matter of the report is arranged under the following headings:—

Part I.—*Simple Theory of Direction-Finding*.—1. General theory of a closed loop in an electro-magnetic field. 2. The single coil direction-finding system. 3. The Bellini-Tosi

direction-finding system. 4. The Robinson direction-finding system. 5. Effect of inclination and polarisation of wave front on direction-finders of the above system.

Part II.—*Experimental Comparison of the above Direction-Finding Systems*.—6. Introductory. 7. Comparison of Bellini-Tosi and Robinson systems on damped waves of length 2 to 5 kms. 8. Comparison of single frame, Bellini-Tosi and Robinson systems on damped and undamped waves of lengths 1.8 to 9 kms. 9. Comparison of Bellini-Tosi and Robinson systems on damped and undamped waves of lengths 2 to 9 kms.

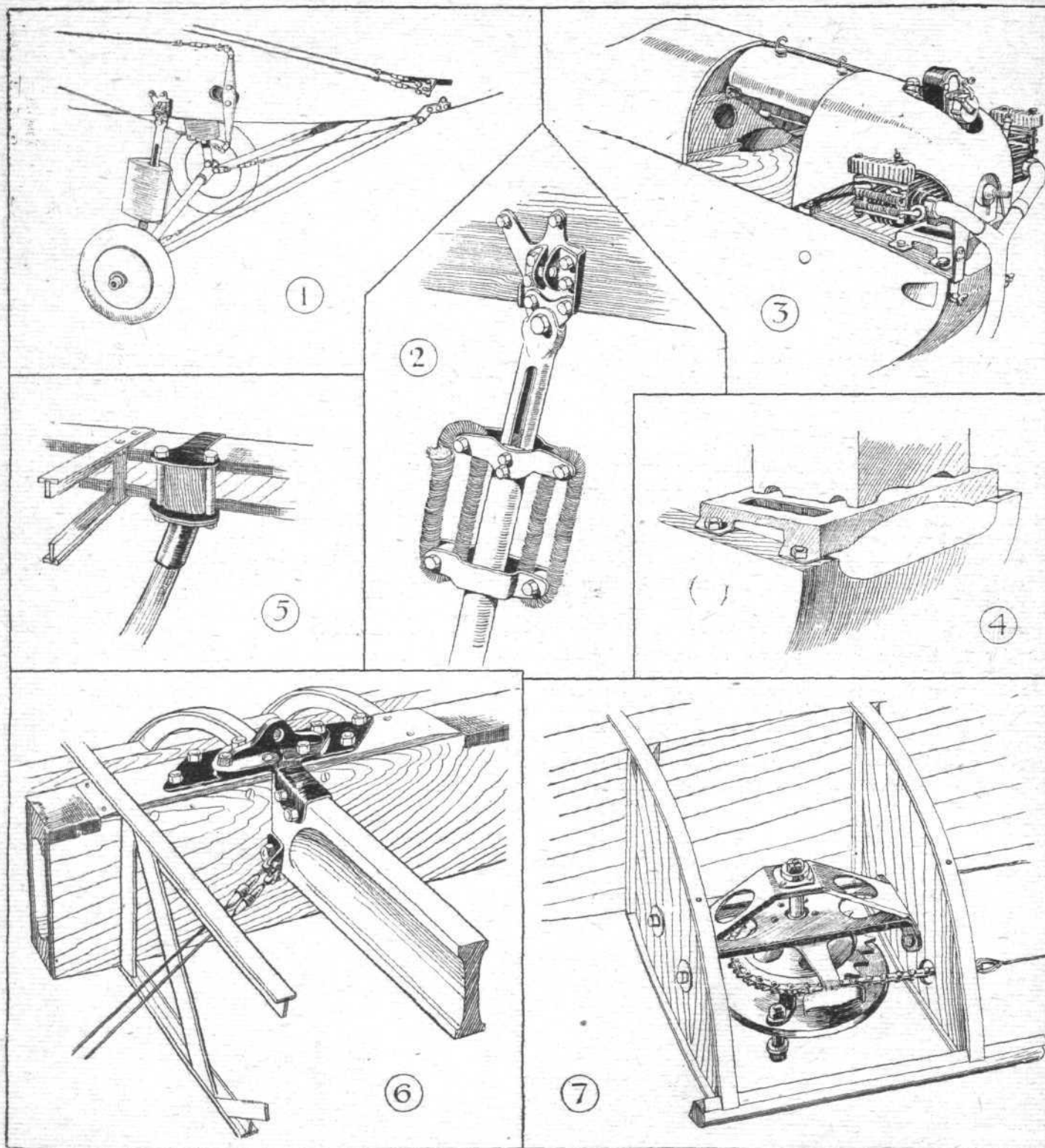
Part III.—*General Discussion on the Operation of the Three Systems*.—General conclusions.

Copies of the Report may be obtained from H.M. Stationery Office, Kingsway, etc., price 9d.

The wings are built up on two box spars having spruce flanges and three-ply walls. The flanges are spindled out internally to form a rounded channel section, thus giving a large glueing area. The spacing of the spars is normal, and very large ailerons are fitted. In front view the wing spars have a pronounced taper, with the greatest depth occurring where the wing struts meet the spars, and the smallest depth

actual R.A.F. 15 section occurs approximately where the straight leading and trailing edges meet the curves of the wing tip.

The ribs are of normal type, built of spruce, and I-section compression struts are employed. The very substantial fitting which secures the wing strut to the top of the spars is shown in one of our sketches, which also gives a good idea



THE D.H. 53 LIGHT 'PLANE : Some constructional details. 1, General view of the undercarriage, of which some of the details are shown in 2 ; 3 shows the engine mounting, cowling, tank, etc. ; and 4, the very simple engine plate. The fitting for one of the wing-tip cane skids is shown in 5. In 6 the construction of spars, ribs, and compression struts is indicated, as well as the substantial fitting for the wing struts. Details of the aileron sprocket mounting are shown in 7.

at the wing tips. At the root, where the wing is hinged to the fuselage, the depth of the section is approximately two inches, and the trailing edge is swept upward and forward to meet the lower longeron of the body. The wing section employed, if one can speak of any definite section in a tapering wing in which no two ribs are alike, is a modified R.A.F. 15, with the ordinates stepped up at the section of greatest depth. The

of the spar sections, rib construction, etc. The wing struts themselves are solid spruce of streamline section, and it will be observed that they meet at one point on the top longeron of the fuselage. Thus no wire bracing is required, the structure being triangulated.

Very simple fittings are used for attaching the wing spars to the fuselage and the struts to fuselage and spars. Altogether

"LA COURSE-CROISIÈRE DE LA MEDITERRANÉE"

Only Two Machines Out of Ten Finish the Course

THE French seaplane competition termed the "*Course-Croisière de la Méditerranée*," which took place between September 1 and 5, had attracted ten entries, out of which only two finished the course. The competition consisted in flying from St. Raphael, on the Riviera, to Bizerta in Tunis, and back to Etang de Berre, near Marseilles, with compulsory landings at Ajaccio, Corsica, and optional landings at Cagliari, on the south coast of Sardinia, on both the outward and homeward journey. A list of the machines entered for this competition was published in our issue of August 30, 1923. As already mentioned, out of these ten but two succeeded in completing the course; two failed to start and the other eight had to give up for various reasons. The distance from St. Raphael to Ajaccio is 232.7 kms. (145 miles), and from Ajaccio to Bizerta, via Cagliari, 524 kms. (325 miles). From Ajaccio to Etang de Berre is 342 kms. (212 miles). Thus the total distance for the double journey is 1622.7 kms. (1,008 miles).

The machines were started from St. Raphael by M. Laurent-Eynac, French Under-Secretary of State for Air, on the morning of September 1. The first to get away were the two lightly-loaded Schreck F.B.A. flying boats, piloted by Laporte and Maicon respectively. These two pilots did not bother to taxi out to sea so as to take off into the wind, but started from the line and took off in the following wind. The heavier machines left in the following order: Hurel (C.A.M.S.), Radisson (Liore and Olivier), Pommereau (Liore and Olivier), Duhamel (Bellanger-Denhaut), Marechallat (Blanchard) and Duneaud (Bleriot-Blanchard).

Out of the eight machines which left St. Raphael but three arrived at Bizerta. These were, in the order of arrival: Hurel, Laporte, and Radisson. Hurel's time for the trip was 6 hours 15 minutes, corresponding to a speed of 121.070 kms. (75.5 miles) per hour. Laporte took 10 hours 35 minutes for the trip, giving an average speed of 71.5 kms. (44.5 miles) per hour, while Radisson's time was 10 hours 43 minutes,

corresponding to a speed of 70.61 kms. (43.8 miles) per hour.

Sunday, September 2, was a day of rest at Bizerta, as far as actual flying was concerned, although the three competitors were naturally busy attending to their machines. On Monday, September 3, the three competitors started off on the return journey. Radisson had to give up at Antibes for some reason unknown to us at the moment, and only Hurel and Laporte arrived at Etang de Berre. Although Hurel, piloting a C.A.M.S. 33 bis twin-engined flying boat, had made the fastest time, first place was awarded to Laporte, the competition being not only for speed but also for useful load carried per horse power, Laporte's F.B.A. carrying 1.39 kg. (3.06 lbs.) per h.p., while Hurel's C.A.M.S. 33 bis carried only 0.725 kg. (1.6 lbs.) per h.p. Thus the classification was 1st, Laporte; 2nd, Hurel.

The Schreck F.B.A., piloted by Laporte, is a single-engined two-seater flying boat, type 17 H.E. 2, similar in a general way to the machine exhibited at the 1922 Paris Aero Show (type 16 H.E. 2), with the exception that the engine is a 180 h.p. Hispano-Suiza instead of a 140 h.p. Hispano-Suiza.

The general lay-out of the machine will be seen from the general arrangement drawings on page 582, very kindly supplied us by the manufacturers. There is nothing remarkable in any way in the design, which is a straight-forward single-step flat-sided flying boat hull. The main characteristics of the Schreck F.B.A., type 17 H.E. 2, are as follows: Length o.a., 8.94 m. (29 ft. 4 ins.); span, 12.87 m. (44 ft. 3 ins.); wing area, 36.5 sq. m. (393 sq. ft.); useful load, 350 kgs. (770 lbs.); total loaded weight, 1,210 kgs. (2,660 lbs.); engine, 180 h.p. Hispano-Suiza; power loading, 14.8 lbs./h.p.; wing loading, 6.8 lbs./sq. ft.; speed, 165 kms./hour (102 m.p.h.); climb to 4,000 metres (13,150 ft.) in 32 minutes. Time for getting off: 10 seconds.

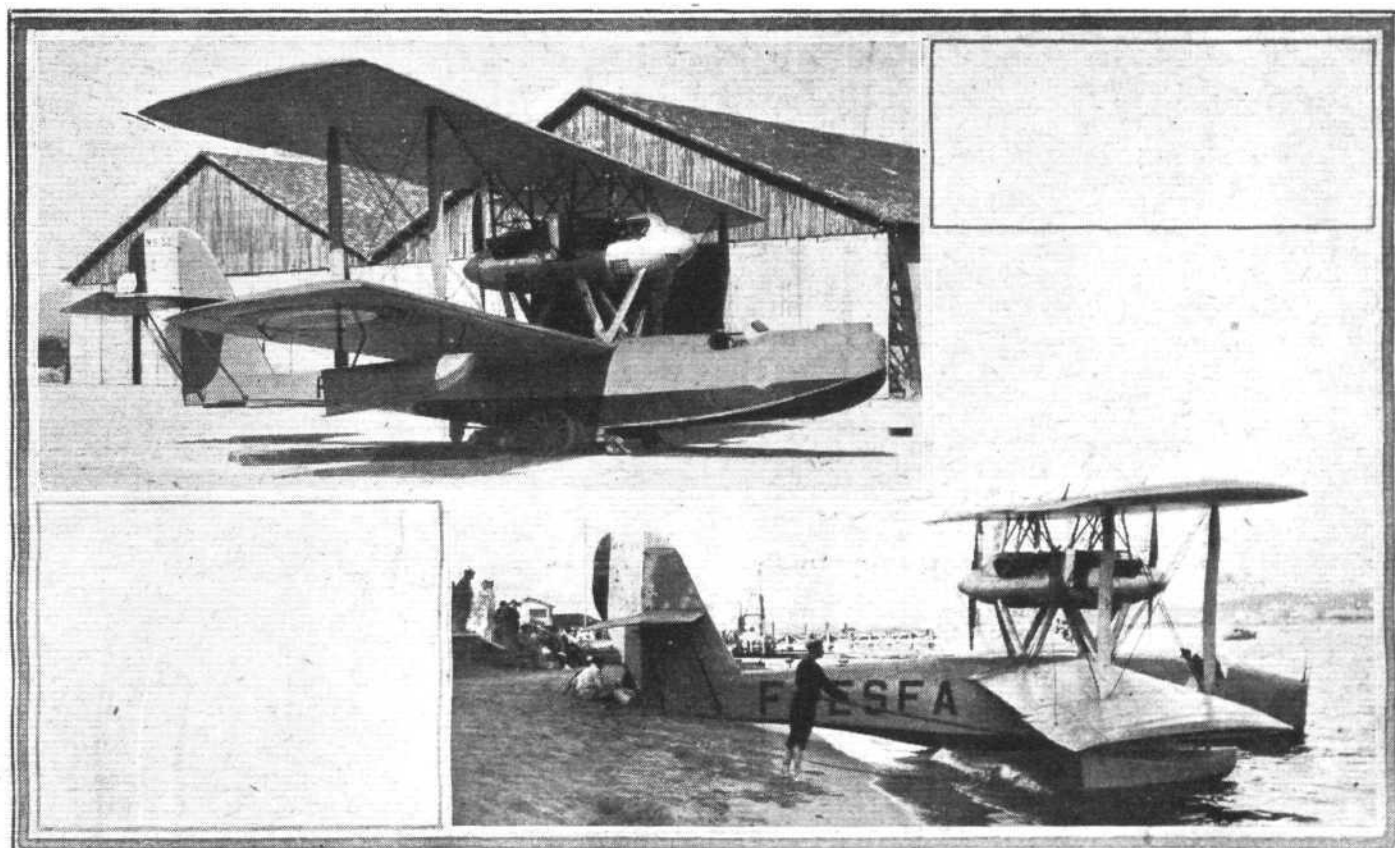
It is of interest to note that the second F.B.A. machine was forced to retire from the race owing to the illness of the mechanic, who suffered from violent sea sickness.

THE C.A.M.S. TYPE 33 BIS FLYING BOAT

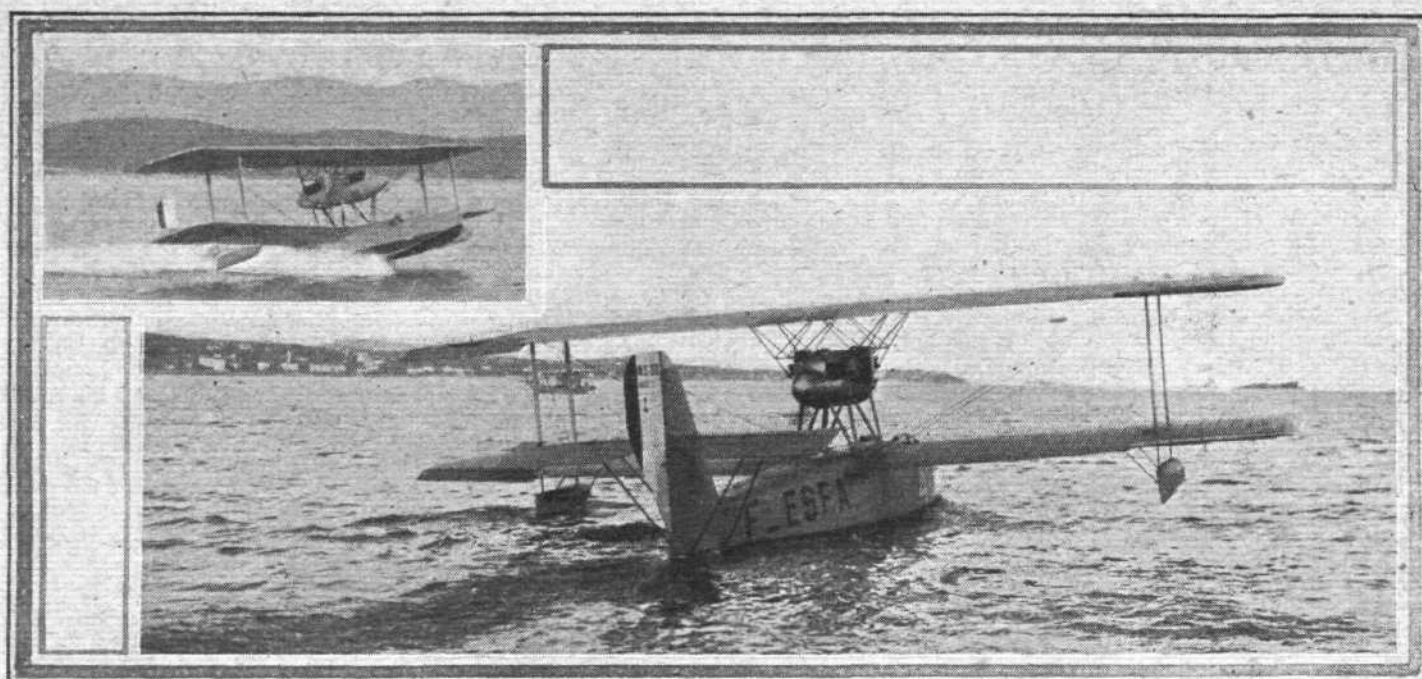
Two Hispano-Suiza Engines.

THE machine which secured second place in the *Course-Croisière* was the C.A.M.S. 33 Bis, shown in the accompanying photographs. This machine, piloted by Hurel, who, by the

way, is flying a C.A.M.S. racer in the Schneider Cup race tomorrow, is similar in general lines to the C.A.M.S. 33T described and illustrated in our issue of July 26, 1923, except



THE C.A.M.S. TWIN-ENGINED FLYING BOAT: No. 3 is the type 33 bis, while the lower photograph shows the type 33. The engines are Hispano-Suizas. One of these machines won second place in the recent competition across the Mediterranean and back (St. Raphael-Corsica, Bizerta, Corsica-Berre).



C.A.M.S. 33 ON THE SEA : The larger photograph shows the type 33, while the inset shows the 33 Bis taking off.

that whereas the 33 T has a cabin for passengers the 33 Bis has open cockpits, suitable for the mounting of guns, etc. The two Hispano-Suiza engines are mounted one behind the other between the top plane and the boat, one driving a tractor and one a pusher airscrew. Thus in the case of one engine failing the centre of thrust remains in the same position as before, and the trim of the machine is not affected, while there is, of course, no yawing couple as in the case of a twin-engined machine with the engines on the wings.

In connection with the French seaplane competition it is of interest to note that the C.A.M.S. 33 Bis, piloted by Hurel,

made the flight from St. Raphael to Bizerta in 6 hours 15 minutes, as already stated, and that the tanks were not replenished, during the trip. The Chantiers Aéro-Maritimes de la Seine, of which Mr. Lawrence Santoni is managing director, are designed by M. Conflenti, who was chief designer to the Savoia firm, while Mr. Santoni was their managing director. Since establishing himself in France, Mr. Santoni has already succeeded in turning out several very successful types of flying boats, in which class of machine the C.A.M.S. specialise, and visitors to Cowes and Southsea for the Schneider race will do well to watch the C.A.M.S. racer.

GORDON-BENNETT BALLOON RACE

Fatal Accidents Mar Historic Contest

THIS year's Gordon-Bennett balloon race, which started from Brussels on Sunday, has provided probably the most disastrous series of mishaps ever recorded against this ancient sport. That the British craft have emerged without fatal mishap is something to be thankful for, whilst one and all will condole with their unfortunate competitors who have not proved so lucky.

At the moment of writing it would appear as if in the Belgian balloon, "Belgica," piloted by de Muyter and Denonein, will be found the winner. It is reported that a safe landing was made on Monday at 7.30 p.m. at Orebro, in Central Sweden. It may be remembered that de Muyter won the cup last year, and thus wins it for the third time. In regard to the incidents of the race, 15 started out of 17 entries, and of these two encountered a severe storm shortly after the start and came down in flames, resulting in three deaths. Later on a third balloon fell in flames, with fatal results, bringing the death-roll up to five. Of the remaining balloons, two others crashed, fortunately without loss of life to the pilots, and the rest effected more or less safe landings.

The 15 starters in the order of their departure, were as follows:—"Picardie" (France), Bienaime and Ravine; "Fernandez Duro" (Spain), Magdalena and Baselga; U.S. Army S.6 (U.S.A.), Olmstead and Choptow; "Belgica" (Belgium), De Muyter and Denonein; "Helvetia" (Switzerland), Armbruster; "Banshee III" (Great Britain), John Dunville and Squad.-Ldr. Baldwin; "Savoie" (France), Jules Dubois and Debray; "Polar" (Spain), Guillamon and P. Barca; U.S.-Navy 6699 (U.S.A.), Lawrence and Reichelderfer; "Geneva" (Switzerland), Goruningen and Burka; "Margaret" (Great Britain), Spencer and Berry; "Fernande II" (France), G. Blanchet; "Esperia" (Spain), Guillena and Sierra; "Prince Leopold" (Belgium), Veenstra and Quersin; "Zurich" (Switzerland), Picard and Stahel.

The first mishap occurred at the start, when the U.S. Army balloon fouled the Belgian balloon "Ville de Bruxelles"

and ripped the latter's envelope, thus placing it out of the running. The next to come to grief was the Spanish balloon "Polar" when passing over Heyst, Belgium. For some reason, said to be due to lightning, the balloon caught fire and fell from a height of about 1,000 ft. The assistant pilot Barca was burned to death, but Guillamon was only slightly injured. A similar fate overtook the Swiss balloon "Geneva" at Moll, Belgium, and both pilots were killed. The third disaster, also said to be due to lightning, occurred to the U.S. Army balloon, at Niesselrode, Holland, which also fell in flames, killing both pilots.

The British balloon "Margaret" was picked up in the sea about 20 miles N.W. of Skagen, Denmark, both occupants being saved. The fifth mishap occurred to the Spanish balloon "Esperia," which "crashed" at Woldendorp, Holland, and fouled a high tension electric cable, both pilots being seriously injured.

The second British balloon, "Banshee III" landed safely at Erten, Holland. The placing of the successful competitors are given, provisionally, as follows:—

- | | |
|--|------------|
| 1. De Muyter, "Belgica" (Belgium), Skeelrota, Swed. | 1,600 kms. |
| 2. Veenstra, "Prince Leopold" (Belgium), Melleund, Swed. | 1,000 " |
| 3. Armbruster, "Helvetia" (Swiss), Flensburg, Schelwez | 550 " |
| 4. Bienaime, "Picardie" (France), Beeslem, Hanover | 280 " |
| 5. Lawrence, "U.S. Navy" (U.S.A.) | 180 " |
| 6. Dunville, "Banshee III" (British) | 130 " |
| 7. Magdalena, "Fernandez-Duro" (Spain), Schaydk, Holland | 130 " |
| 8. Picard, "Zurich" (Swiss), Eersele, Holland | 90 " |
| 9. Dubois, "Savoie" (France), Rethy, Holland | 70 " |
| 10. Blanchet, "Fernandi" (France), Lille St. Pierre, Belgium | 50 " |

FALCON AIRSCREWS

ON paying a visit the other day to the works of the Falcon Airscrew Company, at 113, Cottenham Road, N.19, we were agreeably surprised by the scene of considerably increased activity that prevailed as compared with the occasion of our last visit, nearly a year ago. Yet "surprised" is perhaps hardly the correct term to apply in this case, bearing in mind that this firm possesses certain assets which should in any case make for success. In the first place, Mr. D. M. Davies, the "moving spirit" of the Falcon Airscrew Company, not only has considerable experience in wood working in all its branches, but is also an excellent organiser and possesses that not very common gift of being able rapidly to grasp the requirements and problems relating to any particular job, and thus handle it in the most efficient manner possible.

Secondly, the works are exceedingly well equipped, both as regards machines—some of which have been designed by the Falcon Company for special work—and highly skilled staff.

Thus, when we have a highly specialised branch of wood-working such as the manufacture of airscrews, which calls for considerable all-round accuracy and highly skilled craftsmanship, a firm so situated is able to tackle such work to the best advantage.

Falcon airscrews gained an excellent reputation during the War, with the result that the firm was able to "carry on"—though, of course, at a reduced output—after the Armistice when many other aircraft firms had to drop out. During this latter period, when mass production was not the primary requirement, the Falcon Airscrew Company concentrated on what we might term individual hand work in the manufacture of their airscrews in preference to the extensive use of machinery. As a result of this policy the airscrews produced were of very high quality, and the demand for Falcon airscrews has, in consequence, steadily increased. In fact, we are given to understand that at the present moment, of the total supply of airscrews in this country about 90 per cent. are "Falcons."

In order to cope with the present demand Mr. Davies has

introduced several improvements in the method of production, and whilst highly skilled hand work is still retained—especially in the final stages—he has had designed some exceedingly successful machines which help considerably to speed-up production. One machine, for instance, accurately shapes the roughly laminated, glued-up block to any desired section, a job taking well under the half-hour per propeller.

It is hardly necessary for us to describe in full the process of manufacture of Falcon airscrews, as in general this follows usual practice, with which, no doubt, our readers are familiar. It is in the detail work, and the method of handling each particular job that this firm makes good—and this, of course, is a matter which is "strictly private."

Before concluding, there are two items to which we would like to refer. One is the excellent examples of three- and four-bladed airscrews turned out by this firm. These, as is well known, require even greater accuracy and workmanship than do the two-bladed, and are very difficult to build up, for when halving together the laminations in the boss even the most minute differences in thickness, or angle of the joints, would throw the blades out of alignment. In the case of the three-bladed airscrew the operation is more difficult still.

The second item consists of an ingenious system, evolved by the company, of metal-tipping the blades of air-screws. This was fully described in our issue for November 16 last, so we need only briefly outline the principle here. In this, instead of the usual single narrow strip of brass bent over the edge of the blades and hammered (with a certain amount of detriment to the metal) to a close fit thereon, the blade-edge is reinforced by a plurality of separate sections or clips of metal, which are secured side by side along the leading edge and tip of the blade. This provides for a certain amount of flexibility—like the shell of a lobster—which can accommodate itself to the flexing of the blade without any tendency to buckle, a fault common to the rigid method of metal reinforcing. This arrangement has, we understand, given excellent results in actual practice.

Letters and Parcels to Holland

THE Postmaster-General announced recently that on and from Monday, September 17, the despatch of letters and parcels from London to Holland by the 12.25 p.m. aeroplane from Croydon would cease. The despatch by the 8.30 a.m. aeroplane, both of letters and parcels, will be maintained.

An Imperial Air Policy

In the current issue of the *Quarterly Review* Sir Charles Bright has an exhaustive article upon Air Policy as an Imperial Question. He has embodied the leading opinions and most vital facts from various sources pointing to the absolute

necessity for giving a generous opening to the full development of our air resources. In placing the more important issues in their proper sequence, and backing them up with quotations from men of moment, Sir Charles has done good work which will help still further to urge on our authorities to make up for past short-sightedness in regard to air supremacy. The authors whose works Sir Charles Bright specially brings into review are the late Sir Walter Raleigh, Sir Frederic H. Sykes, Col. W. Lockwood Marsh and Major G. P. Neumann, each of whom have given various aeronautical problems profound study. A skilful dissection of a subject such as presented by Sir Charles Bright is a helpful guide to the better understanding of the case—in this instance—for the air.



A record breaker: Sadi Lecoq's Nieuport-Delage, 300 h.p. Hispano-Suiza engine, on which he has recently made several attacks on the world's altitude record. His best height so far has been 10,700 metres indicated, but this has not yet been homologated. Note the Lamblin radiators.

NOTICES TO AIRMEN

Competitions for Light Flying Machines to be held by Royal Aero Club, October, 1923

THE following Direction has been issued by the Secretary of State for Air under Article 22 (1) of the Air Navigation Order, 1922 :—

" On the recommendation of the Air Ministry, every aircraft entered for the competitions hereinafter mentioned, or for any of them, is hereby excepted from the provisions of sub-paragraphs (i), (ii) and (iv) of paragraph (1) of Article 3, sub-paragraph (i) of paragraph (1) of Article 4, Article 11 and Article 12 of the Air Navigation Order, 1922, subject to the following limitations and conditions :—

" (1) This exception shall apply only to aircraft duly entered for the competitions for light flying machines intended to be conducted by the Royal Aero Club during October, 1923, at and in the neighbourhood of Lympne Aerodrome, Kent."

" (2) This exception shall apply only : (a) to flights carried out in the course of the competitions, including practice flights carried out at the place of the competitions before their commencement or during their continuance; and (b) to flights for the purpose of proceeding to or returning from the place of the competitions. It shall not, however, apply to any flight which takes place wholly or partially over a city or town area or populous district.

" (3) If it appears to an authorised representative of the Secretary of State that the flight of any aircraft to which this exception applies is unduly dangerous, such representative may, by notice in writing to the owner, pilot, or person in charge of the aircraft, cancel or suspend this exception as regards that aircraft, and this exception shall thereupon cease to apply to that aircraft unless and until such cancellation or suspension is withdrawn in writing by an authorised representative of the Secretary of State.

" (4) Subject to the provisions of the preceding paragraph, this exception shall operate until ten days after the conclusion or abandonment of the said competitions, or of whichever of them is last to be concluded or abandoned. Provided that this exception may be withdrawn at any time by the Secretary of State.

(No 72 of 1923)

Holland : Customs Arrangements

It is hereby notified :—

1. *Customs Air Stations.*—(i) Aircraft entering or leaving Dutch territory (including territorial waters) must make their first landing at or final departure from Schiphol (Amsterdam) aerodrome or Waalhaven (Rotterdam) aerodrome in the case of land planes, and Schellingwoude (Amsterdam) or Waalhaven (Rotterdam), in the case of seaplanes. No intermediary landing must be made between the frontier and the said aerodromes or bases.

(ii) In special cases, by permission of the Minister of Waterstaat, such first landing or final departure may be effected at or from other places at which arrangements for Customs formalities exist. The prohibition of intermediary landing applies equally in such cases.

2. *Customs Regulations.*—(i) Aircraft engaged in regular air traffic may undergo immediate Customs clearance at Schiphol and Waalhaven aerodromes.

(ii) In the case of aircraft, not engaged in regular air traffic, arrangements have been made for immediate Customs clearance at Schiphol and Waalhaven aerodromes on weekdays between 11.00 hours and 16.00 hours. Aircraft arriving at or starting from the said aerodromes outside the hours stated, and aircraft arriving at or starting from Schellingwoude aerodrome, can only undergo immediate Customs clearance provided timely notification of the time of arrival or departure, as the case may be, is given to the authority controlling the aerodrome.

(iii) If one or more aircraft require permission to make their first landing on arrival from abroad or their final departure for

abroad at or from some place other than Schiphol, Waalhaven and Schellingwoude, the persons concerned must apply direct, if possible, in writing, six days before the date of the proposed landing or departure, to the Bureau Luchtvaart van de Afdeling Waterstaat A, Departement van Waterstaat, The Hague, stating :—

(a) The aerodrome which it is desired to land at or depart from.

(b) The nationality and registration marks, also any other recognition marks and numbers carried by the aircraft for which the application is made.

(c) The owner of the aircraft.

(d) The reasons for desiring permission to land at or depart from an aerodrome other than an aerodrome open to public (international) civil air traffic.

(e) The last place of departure or first destination abroad.

(f) The time of landing or departure from the aerodrome referred to under (a).

(g) Whether passengers and (or) goods are to be carried by the aircraft (one or more) for which the permit is required, during the flight which is to terminate or commence at the aerodrome referred to under (a).

(h) The place of origin and destination of the passengers and (or) goods referred to under (g), the purpose for which the transport is undertaken and the nature and quantity of goods conveyed.

The permission referred to above will be granted in exceptional cases only.

3. *Height of Flight.*—Above an inhabited area flight may only be carried out at such altitude that it is always possible to land outside such an area in gliding flight, engine (engines) off; in no case shall flight above an inhabited area be carried out at an altitude of less than 400 metres above the ground. Flights shall not be carried out above public gatherings except at such altitude that it is always possible to land beyond such gatherings in gliding flight, engine (engines) off.

4. *Previous Notices.*—Notice to Airmen No. 126 of 1920 (paragraphs headed "Customs") is modified by paragraph 2 above.

Notice to Airmen No. 138 of 1920 is cancelled by paragraphs 2 and 3 above.

5. *Authority.*—Netherlands Notice to Airmen No. 29 of 1923. (No. 73 of 1923.)

Belgium : Haren, Levelling Operations

It is hereby notified :—

Levelling operations are in progress on the northern portion of Haren aerodrome. The danger area is delimited by flags by day and by red lights at night.

A circular zone in the southern portion of the aerodrome, delimited by white triangles, is suitable for landing in all weathers.

(No. 74 of 1923.)

Aerial Corridors on the Franco-Swiss Frontier.

It is hereby notified :—

1. As the result of an agreement recently concluded between the French and Swiss Governments an additional aerial corridor on the Franco-Swiss frontier has been established at Basle.

At present, therefore, aircraft may cross this frontier by the following four corridors :—

(1) A zone 3 kms. in radius around Basle.

(2) Between Mouthe and Les Verrières.

(3) Between Delle and Ferrette.

(4) A zone 3 kms. in radius around Bellegarde.

2. *Previous Notice.*—Notice to Airmen No. 104 of 1920 is amplified by this notice.

3. *Authority.*—Bulletin de la Navigation Aérienne No. 40, 1923.

(No. 75 of the year 1923.)

The Rolls-Royce in Russia

APPROPOS of the paragraph in our issue of September 13, referring to the wonderful reliability of the Koenigsberg-Moscow Air Line, the Aircraft Disposal Co. have received from the Deutsch-Russische Luftverkehrs-Ges., who run this line, the following letter which speaks for itself :—

Enclosed you will find one review showing the flying activity of our Company during the last year and two pictures of Fokker III aeroplanes all fitted with Rolls-Royce Eagle VIII engines, which were originally supplied by the Aircraft Disposal Company. Those aeroplanes are

used on Koenigsberg-Moscow line. We should like here to point out that during the whole flying season 1922 we did not have a single forced landing owing to the failure of our engines, and we do not think that any other engines could give better results as those Eagle 8 engines, although they were working in worse conditions than in any other European Air line owing to very long flying distances, very cold and bad weather, lack of hangars and trained mechanics.

London-Brussels Air Mail

THE Postmaster-General announces that the letter air mail from London to Brussels has been suspended.

THE ROYAL AIR FORCE

London Gazette, September 18, 1923.

General Duties Branch

The follg. Flight Cadets, having successfully passed through the R.A.F. (Cadet) College, are granted perm. commns. as Pilot Officers (Aug. 15):—
G. L. Worthington, A. D. Davies, G. R. M. Clifford, F. V. Beamish, D. L. Thomson, C. K. J. Coggle, R. A. P. Roberts, T. B. Prickman, B. D. J. Broadway, P. Jones, F. F. W. Hall, F. J. Fressanges, N. A. P. Pritchett, H. M. Mellor, R. Scott-Taylor.

The follg. are granted short service commns. as Flying Offrs., with effect from, and with seny. of, the dates indicated:—A. K. Bamber; Sept. 10. H. Hollick-Kenyon; Sept. 7.

V. M. Kenny-Leveck, M.B.E., is granted a short service commn. as Flight Lieut. for three years on the active list; Sept. 1.

The follg. Indian Army Offrs. are granted temporary commns. in the ranks stated on secndg. for four years' duty with the R.A.F.:—

Flying Offr. (Hon. Flight-Lieut.).—W. H. Vetch (Capt., Gurkha Rifles); Aug. 27.

Flying Offr.—F. M. Rooth (Lieut., 19th Lancers); Aug. 21. *Flying Offr.* J. V. Ould is confirmed in rank; Aug. 31.

The follg. Lieuts., R.N., are reattached for a further year's duty with the R.A.F. (Sept. 6):—

Flight Lieut..—G. S. N. Johnston.

Flying Offr. (Hon. Flight-Lieut.).—G. C. L. Dalley.

Flight-Lieut. J. T. Vernon is transferred to Res., Cl. C.; Sept. 16. Pilot Officer J. Francis resigns his short service commn.; Sept. 11. Sqdn.-Leader F. J. Rutland, D.S.C., A.M., is placed on the ret'd. list; Sept. 19.

Reserve of Air Force Officers

The following are granted commns. on probation in the ranks stated, in the Gen. Duties Branch (Sept. 18):—

Class A.

Flying Officer.—N. S. McConnell.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Group Captain A. G. Board, C.M.G., D.S.O., to Station Commandant, Iraq. 14.9.23, for duty as Commandant.

Wing Commanders: D. L. Allen, A.F.C., to R.A.F. Depot. 10.9.23, on transfer to Home Establishment pending disposal. T. R. Cave-Browne-Cave, C.B.E., to R.A.F. Depot. 24.9.23, whilst attending Staff Course at Royal Naval College, Greenwich. M. Spicer to Aircraft Depot, Iraq. 14.9.23, to command. S. A. Hebdon, O.B.E., to Aircraft Depot, Egypt. 14.9.23, to command.

Squadron Leaders: A. J. Miley, O.B.E., to R.A.F. Base, Malta. 28.8.23, to command. K. R. Park, M.C., D.F.C., to Headquarters, R.A.F., Middle East, Egypt. 5.9.23. D. Stewart, M.C., A.F.C., to No. 1 School of Technical Training (Boys), Halton. 20.9.23. A. W. Tedder to R.A.F. Depot. 24.9.23, whilst attending Staff Course at Royal Naval College, Greenwich. D. C. S. Evill, D.S.C., A.F.C., to No. 4 Flying Training School, Egypt. 14.9.23. A. W. H. James, M.C., to No. 60 Squadron, India. 14.9.23. H. S. Powell, M.C., to No. 28 Squadron, India. 14.9.23. R. H. Jones, O.B.E., to Rest Camp, Iraq. 14.9.23. J. C. P. Wood, to Aircraft Depot, Iraq. 14.9.23. A. L. Gregory, M.B.E., M.C., to Headquarters, Iraq. 14.9.23.

Flight Lieutenants: J. A. Sadler, F. A. Norton, E. S. Ades, all to R.A.F. Base, Malta (No. 481 Flight). 28.8.23. A. W. Mylne, to No. 31 Squadron, India. J. B. Cole-Hamilton to Headquarters, R.A.F., India. W. A. Skeate to Aircraft Depot, India. H. S. Kerby, D.S.C., A.F.C., to No. 3 Wing Headquarters, India. R. C. Savery, D.F.C., to No. 60 Squadron, India. J. L. M. de C. Hughes-Chamberlain to No. 2 Wing Headquarters, India. A. Lees, J. K. Summers, M.C., J. J. Williamson, A.F.C., J. Cottle, M.B.E., D.F.C., all to No. 45 Squadron, Iraq. E. D. Atkinson, D.F.C., A.F.C., to No. 8 Squadron, Iraq. C. L. Scott, D.S.C., J. F. Roche, E. J. McLoughlin, G. H. Martingell, A.F.C., all to No. 70 Squadron, Iraq. C. S. Morice, M.C., W. B. Farrington, D.S.O., V. M. Kenny-Leveck, M.B.E., all to Headquarters, Iraq. J. S. T. Fall, D.S.C., A.F.C., to No. 1 Squadron, Iraq. L. V. Hirst, G. M. F. O'Brien, D.S.C., both to No. 3 Armoured Car Co., Iraq. B. J. Silly, M.C., D.F.C., D. S. Eard, D.F.C., both to No. 55 Squadron, Iraq. C. Turner, A.F.C., M. F. Browne, C. Hanson-Abbott, all to Aircraft Depot, Iraq. A. J. Long, G. T. Richardson, both to No. 5 Armoured Car Co., Iraq. S. F. Vincent, A.F.C., to No. 30 Squadron, Iraq. H. L. Rough, D.F.C., to No. 6 Squadron, Iraq. The above-named officers are all posted with effect from 14.9.23. F. H. Laurence, M.C., to No. 27 Squadron, India. 14.9.23.

Flying Officers: A. H. Paull to R.A.F. Base, Gosport (No. 461 Flight). 17.9.23. F. A. Pumphey to No. 32 Squadron, Kenley. 19.9.23. A. I. Riley, A. F. C., to No. 41 Squadron, Northolt. 19.9.23. F. M. Rooth to No. 4 Flying Training School, Egypt. 21.8.23, on appointment to a Temporary Commission on being seconded from the Indian Army, for course of instruction. J. F. V. Sugars, I. Hodgson, K. G. Mackenzie, A. F. Adams, H. J. White, R. G. Moillard, V. H. Clift, all to R.A.F. Base, Malta (No. 481 Flight). 28.8.23. J. F. Lewar to No. 2 Flying Training School, Duxford. 1.9.23. A. H. C. Derby to No. 2 Flying Training School, Duxford. 14.9.23. A. H. C. A. Rawson to No. 41 Squadron, Northolt. 24.9.23. F. E. W. Davis to No. 5 Flying Training School, Shotwick. 14.9.23. C. B. Wilson to R.A.F. Depot.

Correspondence for Units of Constantinople Wing, R.A.F.

It is notified that no further postal correspondence is to be forwarded to units of the Royal Air Force serving with the British forces in Turkey.

Letters and parcels intended for units of the Constantinople Wing are to be disposed of as under:—

Unit.	Letters, etc., to be sent to
No. 4 Squadron ..	Farnborough, Hants.
No. 25 Squadron ..	Hawkinge, near Folkestone, Kent.
No. 207 Squadron ..	Eastchurch, Kent.
No. 208 Squadron ..	Moascar, Ismailia, Egypt.

Detached flight of No. 56 Squadron, Biggin Hill, Westerham, Kent.

Letters for individuals who were serving with Headquarters,

Class B.

Flying Officers.—W. R. G. Atkins, O.B.E., C. B. Collins, R. T. Daubeney, J. V. Hay, H. G. Herbert, C. W. Halfhide, C. Hole, E. C. Hubbard, W. T. Kanaar, W. J. Metcalfe, D. A. Parrott, H. W. Roberts, W. A. Syme, L. P. Timmins, C. R. H. Trevor, N. W. Wale, C. E. Welsh, W. Woodman.

Pilot Officers.—F. Allen, H. V. Bullock, C. T. S. Capel, H. G. Eggar, R. J. Hibberd, C. A. Jamblin and D. A. Watson.

The follg. resign their commissions, with effect from the dates indicated:—

Flying Officers.—A. K. Bamber; Sept. 10. W. E. Cowan; July 4. R. R. Money; June 14.

Pilot Officers.—J. R. Brown; Aug. 4. H. Hollick-Kenyon; Sept. 7.

Memorandum.

The follg. are granted permanent commissions in the ranks stated as Legal Officers (July 1):—

Wing Commander.—S. C. Russell Crawford, O.B.E., T.D. (Capt. (temp. Maj.), E. Surrey Regt.); Sqdn.-Leader E. St. Clair Harnett, O.B.E.; Flight-Lieut. D. L. Ingpen.

London Gazette, September 21, 1923

General Duties Branch.

The undermentioned are restored to full pay from half-pay (September 13): Squadron Leader A. W. H. James, M.C.; Flight-Lieut. F. H. Laurence, M.C.

Stores Branch.

Squadron Leader F. H. Songhurst, M.B.E., is placed on half-pay Scale B (September 11 to September 12 inclusive).

Medical Branch.

Flight-Lieut. J. Paxton relinquishes his temporary commission on ceasing to be employed (September 1, 1922) (substituted for the notification in the Gazette of September 19, 1922).

17.9.23, on appointment to a Short Service Commission. C. S. Whellock to No. 208 Squadron, Constantinople. 3.9.23. G. J. Davies to Central Flying School, Upavon. 24.9.23. J. S. Nichol to No. 12 Squadron, Northolt. 24.9.23. H. G. Sullivan to R.A.F. Depot (Non-effective Pool). 18.8.23, on transfer to Home Establishment. A. Sattin to R.A.F. Base, Leuchars. 25.9.23, pending allocation to a Flight. C. B. Wilson to No. 12 Squadron, Northolt. 21.9.23. (Hon. Flight-Lieut.) W. H. Vetch to No. 4 Flying Training School, Egypt. 27.8.23, on appointment to a Temporary Commission on being seconded from the Indian Army, for course of instruction. W. N. L. Cope to R.A.F. Depot. 18.9.23, on appointment to a Short Service Commission. H. E. Forrow, A. F. James, both to Aircraft Depot, India. C. E. H. Allen, D.F.C., to No. 27 Squadron, India. C. H. F. Nesbit, E. Bell, both to No. 28 Squadron, India. S. McKeever, C. C. Musselwhite, both to No. 5 Squadron, India. J. N. Jaques, C. W. Weedon, both to No. 20 Squadron, India. J. E. MacLennan, S. D. Macdonald, D.F.C., F. R. Offord, all to No. 4 Armoured Car Co., Iraq. J. M. Fairweather, D.F.C., to No. 8 Squadron, Iraq. G. S. Hodson, A.F.C., to No. 1 Squadron, Iraq. J. R. F. Randell, D.F.C., to No. 30 Squadron, Iraq. J. I. T. Jones, D.S.O., M.C., D.F.C., M.M., to Headquarters, Iraq. L. R. Staddon, C. O. Towler, D.S.M., both to Aircraft Depot, Iraq. L. W. Park to No. 6 Armoured Car Co., Iraq. A. Lees to Stores Depot, Iraq. C. P. Wingfield to No. 45 Squadron, Iraq. L. Butler to No. 70 Squadron, Iraq. The above-named officers are all posted with effect from 14.9.23.

Pilot Officers: H. M. Schofield to R.A.F. Base, Leuchars. 21.9.23. G. C. B. Bernard-Smith to No. 24 Squadron, Kenley. 24.9.23. R. A. P. Roberts to No. 2 Squadron, South Farnborough. 15.8.23, instead of to School of Army Co-operation, Old Sarum, as previously notified. T. B. Prickman to No. 2 Squadron, South Farnborough. 24.9.23. J. R. Brown, E. V. S. Lacey, J. H. G. Franklin, all to No. 84 Squadron, Iraq. J. O. Barnes, A. J. Peacey, both to No. 55 Squadron, Iraq. C. E. N. Guest to No. 30 Squadron, Iraq. B. N. Murgatroyd to No. 8 Squadron, Iraq. R. A. B. Stone, D. Mc. G. Morphy, V. B. Bennett, all to No. 28 Squadron, India. G. W. Gay, R. R. S. Waller, both to No. 31 Squadron, India. M. C. W. C. Flint, M.C., L. G. Pinnell, C. J. Pooley, all to Aircraft Depot, India. C. H. Ratcliffe to No. 5 Squadron, India. A. King-Lewis to No. 20 Squadron, India. B. H. Shaw, A. E. Stewart, W. P. Wiltshire, all to Aircraft Depot, India. N. Carter to No. 5 Squadron, India. The above-named officers are all posted with effect from 14.9.23.

Stores and Accountants Branch.

Squadron Leaders: F. H. Songhurst, M.B.E., to Aircraft Depot, Iraq. 14.9.23. P. Adams, O.B.E., to Headquarters, Iraq. 14.9.23.

Flight Lieutenants: J. Walker to Aircraft Depot, Iraq. 14.9.23. C. M. Bevan to Aircraft Park, India. 14.9.23. E. W. Crosbie to Headquarters, Iraq. 14.9.23.

Flying Officers: H. B. Hawker to R.A.F. Base, Malta. 28.8.23. N. Dainty, H. J. Young, M.B.E., both to No. 1 Stores Depot, Kidbrooke. 24.9.23. C. H. Pownall to Aircraft Depot, India. R. Bassett, to No. 1 Squadron, Iraq. J. McCarthy to No. 55 Squadron, Iraq. L. T. Sanderson, D.S.M., to Aircraft Depot, Iraq. G. C. Wilson to No. 30 Squadron, Iraq. H. A. Lotherington to No. 20 Squadron, India. 14.9.23.

Pilot Officers: F. A. R. Smith to No. 31 Squadron, India. 14.9.23.

Constantinople Wing, the Aircraft Park and No. 1 Aerodrome Party, should be addressed as follows:—

Officers, c/o S.7 Records, Air Ministry, Kingsway, W.C. 2.
Airmen, c/o Officer i/c Records, Ruislip, Uxbridge.

Successful R.A.F. Cadets

THE following is a list of cadets who successfully completed, in August, 1923, their course of training at the Royal Air Force (Cadet) College. The names are arranged in alphabetical order:—

F. V. Beamish, B. D. J. Broadway (winner of R. M. Groves Memorial Prize), G. R. M. Clifford (C. K. J. Coggle, A. D. Davies, F. J. Fressanges, F. F. W. Hall, P. Jones (winner of Hyde-Thomson Memorial Prize), H. M. Mellor, T. B. Prickman, N. A. P. Pritchett, R. A. P. Roberts, R. Scott-Taylor, D. L. Thomson, G. L. Worthington (winner of Sword of Honour and Abdy Gerrard Fellowes Memorial Prize).



By DOUGLAS B. ARMSTRONG

New Air Stamps from U.S.A.

THE New American air mail stamps were duly placed in circulation on August 15, 17 and 21, in connection with the transcontinental night-flying service between New York and San Francisco, inaugurated early in the present month (September). They come in three denominations, one for each stage of the journey—viz., 8 cents from New York to Chicago, 16 cents to Cheyenne and 24 cents for the full distance from Manhattan to the Golden Gate. The 8 cents stamp, printed in olive-green with the device of an aeroplane radiator and propeller, was placed on sale at Washington on August 16, when members of the American Philatelic Society attending their annual convention bought them up to the extent of over \$1,500—more than the entire cost of engraving the plates. The first sheet printed was autographed by the U.S. Postmaster-General, the Second and Third Assistant Postmasters-General and the Director of the Bureau of Engraving and Printing where the stamps were produced.

Two days later it was followed by the 16 cents blue-black bearing the winged insignia of the Air Mail Service, and on August 21 by the 24 cents brown showing a reproduction of a photograph of one of the latest pattern planes as used in the postal service.

The engraving of the dies of the 8c. and 16c. air mail stamps was carried out by Mr. H. P. Dawson, and that of the 24 cents by Mr. John Eissler, both of the Bureau of Engraving and Printing.

Although primarily intended for franking air-post letters, these three stamps are also valid for ordinary letter postage.

Experimental flights were commenced on August 21, but the normal inland rate of 2c. remained in force until the formal inauguration of the service. No special cancellations were used on these trial flights, but receiving offices were instructed to date-stamp the air mail letters on the back so that the dates of despatch and receipt will clearly indicate the method of transmission.

Early American Air Posts

Flown covers showing the special cancellations used in connection with some of the early experimental mail flights in the U.S.A. are of considerable scarcity. The first of these took place on November 12, 1910, when an aeroplane brought off a small mail from the mail steamer *Pennsylvania* on the high seas. Letters carried on this ship were impressed with a rubber-stamp, inscription reading "AEROPLANE MAIL—HAMBURG-AMERICAN LINE AT SEA—VIA AIR ROUTE TO UNITED STATES," and are highly valued by aero-philatelists. On October 1, 1911, the first overland mail flight was successfully carried out between Nassau Boulevard, Long Island and Mineola, N.Y., on the occasion of an International Aviation Meet. The special postmark employed was lettered "AEROPLANE STATION No. 1, GARDEN CITY ESTATES, N.Y.," and letters were additionally marked "AERIAL SPECIAL DESPATCH."

One of the rarest American air postmarks is that of the first official trip from New York to Chicago on May 9, 1918, whilst the special obliteration used on the inaugural flight Washington-New York-Philadelphia, is quoted in a recent price list at 30s. It is noteworthy that covers carried on the return journey are infinitely scarcer.

Readers are invited to forward to the Editor of *FLIGHT* letters, etc., bearing aerial stamps or postmarks for mention in this column, as well as out-of-the-way varieties, etc.

We shall also be pleased to hear from correspondents interested in air-stamp collecting, and to answer any queries.

SOCIETY OF MODEL AERONAUTICAL ENGINEERS (London Aero Models Association)

A MEETING of the Council will be held in the ante-room, first floor, London Central Y.M.C.A., Tottenham Court Road, W.C. 1, on Monday, October 1, at 7.30 p.m., prompt.

Agenda:—Important business before the Hon. Secretary.

The next meeting of the Members will be held at the London Central Y.M.C.A., Tottenham Court Road, W.C. 1, in the British Empire room, first floor, on Friday, October 5, at 7.30 p.m.

Will Members who are desirous of making up a party to visit *Lympne* for the Motor Glider Competition on Saturday, October 13, communicate with Mr. W. E. Evans, of 77, Swindon Road, Wembley, who is making the necessary arrangements?

A programme of lectures for the winter session is being prepared; there are only a few dates left open. Will those who are desirous of reading a paper before the Members communicate with the Hon. Secretary at the earliest possible moment?

On September 29 Competition No. 8, the "D.H. Pilcher Challenge Cup," will be competed for, on Wanstead Flats, at 3.30 p.m., also on September 29, the postponed Open Competition No. 7 for the "K. and M.A.A." Challenge Cup will be held at the same time on Wanstead Flats.

Any one desirous of making attempts on the general records should notify the judges on the ground.

On October 7, at 11 a.m., on Parliament Hill, attempts on the glider records will be made.

A. E. JONES, Hon. Sec.

PUBLICATIONS RECEIVED

Aeronautical Research Committee, Reports and Memoranda. No. 822 (Ae. 73). An Attachment of the Main Balance of 7-ft. No. 2 Wind Tunnel for Measuring Three Forces and Three Moments. By T. Lavender, T. H. Fewster and G. F. Henderson, September, 1922. Price 3d. post free.

Flying.—By Major W. T. Blake. London: George Allen and Unwin, Ltd. 6s.

AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: cyl. = cylinder; I.C. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

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